# EDITORIAL

DOMESTIC ENGINEERING

Whole No. 1402 CHICAGO, OCTOBER 25, 1919 Vol. 89, No. 4

## THE MATERIAL MARKET.

PREVALENCE of abnormal conditions is responsible for the extreme scarcity of all kinds of materials and equipment in the plumbing and heating field today. Manufacturers find it impossible to satisfy distributors and consumers because of an overwhelming demand coming at a time when they have insufficient help. Labor also is not operating at its highest efficiency owing to the lack of skilled men and the unrest among workmen. Plants are being operated day and night in the effort to give service. Many factory additions are being built not only to help the present situation but to pave the way to improved conditions as regards supplies in 1920. There is no lack of evidence that manufacturers everywhere are striving to relieve the situation. Stocks are low in the plants and on jobbers' shelves and little improvement is anticipated for some time to come. In some quarters it is suggested that, if no attempt is made to accumulate goods for future use, there will be more to go around and satisfaction will be more general. It is a time for patience and sound reasoning and those who are unacquainted with facts should be informed.

## GOVERNMENT TO ADOPT BUSINESS SYSTEM.

THE special committee on budget legislation, Representative Good of Iowa, chairman, has presented its bill to the house, designed to become effective July 1, 1920. This is the first definite attempt on the part of congress by systematic adjustment of national expenditures to check public waste, reduce taxes and provide payment of the public debt. The responsibility which has been distributed without practical effectiveness throughout various departments and bureaus now concentrates in the office of the president, and a check on the president is provided in a reviewing agency. Congress has not surrendered any of its prerogatives. There is provision in the bill for a director of the bureau of the budget with salary of $10,000 a year.

Men of authority and patriotism have counseled with the committee over this proposed innovation in the nation's fiscal practice. It is proposed to abolish the present system of submitting estimates to congress and substitute therefore a budget. It was the advice of Secretary of the Treasury Glass to the committee that the president be made responsible for the budget and that a budget bureau be created under the secretary of the treasury. He also favored depriving congress of the power of increasing an estimate submitted by the secretary of the treasury except by a two-thirds vote. He condemned the passage of omnibus public building and river and harbors bills not approved by the department, and he further insisted that the estimates should represent the minimum requirements of the government.

Another helpful witness was William H. Taft, who deserves much credit for the impulses which he gave to this important reform during his own administration as president, comments the Chicago Association of Commerce. He favored the bill before the committee, fathered by Representative Good, with the exception that he opposed a provision for an alternative budget, which allows the department heads to submit original estimates to the committee to compare with the president's budget. His own recommendations were designed to enhance the responsibility and efficiency of the executive. An interesting witness was Col. Henry L. Stimson, secretary of war in President Taft's cabinet, who, as a member of the board of directors of the national budget committee, said that the loose financial system of this country had led its people to depend upon the president to guard the public purse, and that a proper national budget system would help restore the usurpation of power by the president to congress. Col. Stimson pointed out that there are three steps to responsible budget making: first, formulation of a work program by the people who do the work and spend the money; second, authorizing the work proposed by the legislative branch; third, work of investigation to see that the work proposed has been carried out.

## VENTILATION IMPORTANT NOW.

AN indifferent reception is often accorded the man who makes suggestions at a time when the prospect is not entirely sure that such recommendations should be adopted. The factory owner, who, this summer, was told that he needed ventilating and air conditioning equipment in his plant may not have been entirely convinced of its necessity on walking through his plant and finding a nice breeze blowing through the windows. Now that windows are closed there is a greater need for such apparatus. Heat has been turned on, and opening windows temporarily is a poor way to solve the pure air problem. Workers, operating in a stuffy atmosphere, become drowsy and inefficient, and that sickness and deaths increase largely from October to March is easily proved from statistics. In these days when high production is essential, the man who starts a ventilation and air conditioning campaign will render a splendid service to the manufacturer and the country at large, besides bringing profitable business to his establisment.

# HEATING CONTRACTOR CAN HELP CONSUMER DURING COAL CRISIS

*Equipment Should Be Put in First-Class Condition and Service Can Be Furthered by Telling Customer How to Operate Boiler Economically*

*By* Charles Rosemont

WITH a strike threatened, effective November 1st, in the bituminous coal field, and a scarcity among higher priced coals such as are used in domestic heating equipment, this is the opportune time for the heating contractor to conduct a campaign for business in his city that will result in the public benefiting materially from such service.

Heating plants should be put into first class condition so that the owner may get the most out of his equipment and do so economically.

Just as people put off having their heating plants overhauled at a time when the contractor can render excellent service, which is during the summer season, so do they put off buying coal and this is one reason for the scarcity of coal at this time. Until recently there was no market for coal, but buying of late has been abnormal and producers are far behind with their orders. Other contributing factors have been the scarcity of cars and the lack of maximum efficiency at the mines. Last week, as an example, the average production of Indiana mines was only 63 per cent, largely due to car shortage.

The district affected by the threatened strike in the bituminous field is known as the central competitive field, embracing Western Pennsylvania, Ohio, Indiana and Illinois, which mines in the neighborhood of 300,000,000 tons, or about three-fifths of the total bituminous coal in this country. The strike will affect from 300,000 to 400,000 miners operating in this field. Annual production of coal in the United States approximates 600,000,000 tons, of which amount about one million tons is anthracite and the rest bitumious. Whatever the outcome of the present situation in the coal field, it is evident that the consumer will suffer to some extent, but relief can be brought about by the heating contractors of this country, by urging owners to call in heating experts to help remedy their troubles.

### Now Is the Time To Act.

The customer should be urged to do this without loss of time and he should also be reminded that such changes in his heating equipment are not necessarily radical and expensive. Many a heating plant would operate under much higher efficiency if proper air or radiator valves are installed, the boiler and pipes covered with asbestos, a heat regulator provided or other changes which can be brought about without inconvenience. The savings that will thereby be effected can be translated into dollars and cents as represented in the coal saved, and it is not an exaggeration to state that, properly handled, a household heating apparatus can be made to pay for one or more pairs of shoes this winter.

An advertisement in a local newspaper with such information will attract attention and build business, and the same argument used in form letters or other means of publicity will succeed in driving home these facts, in language that the consumer can understand and appreciate.

Last year, "Domestic Engineering" editorially told its subscribers how the householder can save coal, and there is evidence that this proved valuable, as additional requests have been received from readers asking for publicity matter that they can use in their local papers. In view of the present coal situation, also, this information is again being presented for those in the trade who can benefit from its presentation.

The following simple rules were compiled by the Illinois Chapter of the American Society of Heating and Ventilating Engineers and are intended for the layman who knows little of the science of burning coal.

Here are the rules, which mean both coal and dollar saving:

### Soft Coal.

1. Thoroughly clean flues and passages of boiler or furnaces at least once a day.
2. Steam boilers should be blown out under pressure to remove grease and dirt. This is very important and should be done at once by an experienced man. Hot water plants should have water renewed in fall before starting heating season.
3. Clean base of chimney and smoke pipe once a year.

### Method of Firing.

1. Fire often and lightly, keeping grates fully covered.
2. Do not spoil fire by stirring it around or mixing it up.
3. Use slice bar under fire bed on top of grates, lifting only enough to break or crack open the mass. Keep fire free from clinkers.
4. In large boilers or furnaces use the alternate method of firing; first, one-half of grate, and next, firing the other half. This is done to have a bright fire to assist in burning the gases from the coal just fired and to make heat until the fresh coal ignites.
5. Don't smother your fire.
6. Use the smaller prepared sizes of coal if possible. If you cannot get the small coal, break the large coal into small lumps. Wet all soft coal before firing.
7. The best way to fire round boilers or furnaces is to get the house warm by firing lightly and often. Then fill fire pot full of wet coal. Next take a piece of pipe or broom stick and poke a hole down through the fuel bed to the grate. Carefully withdraw and leave hole in fuel bed. Check off the draft so that it will not burn too rapidly. This hole soon will carry a large blue flame, which is gas driven off from the fresh coal. If this method is followed, the gas will not be lost up the chimney.

**Ashes.**

1. Don't shake grate violently. It wastes coal.
2. Keep the ash pit clean.
3. Never allow ashes to get within six inches of grate.
4. Remove ashes from last shaking before shaking again.

**Draft.**

1. Be sure your chimney is large enough, high enough and absolutely tight.
2. Do not allow any connections to be made to the heating chimney, excepting the heating boiler or furnace alone.
3. Regulation of draft is very important in saving coal and should be attended to at once by an experienced man. If you cannot regulate your draft be sure to call for assistance.
4. The draft to ash pit should not be open any more than necessary to maintain the desired temperature.
5. Do not open ash pit door to increase draft. Use draft damper under grate provided with boiler or furnace for this purpose.
6. Check draft must not be open unless draft damper under grate is closed.

**Hard Coal.**

1. Thoroughly clean flues and passages of boiler or furnaces at least once every week.
2. Steam boilers should be blown out in same manner recommended for soft coal. Also clean base of chimney in same manner.

**Method of Firing.**

1. In using anthracite coal a bright fire should always be kept if you wish heat. In building up a fire use a small quantity often with good draft until the fire pot is full to the center of fire door. Draft then can be checked to hold the heat desired.
2. A hard coal fire should never be disturbed by stirring or breaking up with a poker.
3. Remove clinkers, if any, through grate or clinker door.
4. Use size of coal recommended by maker of boiler or furnace. Don't wet hard coal.

**Ashes.**

Rules same as for soft coal.

**Draft.**

Rules same as for soft coal.

**General Remarks.**

1. Cover boiler and pipes with asbestos or other insulation; also weather strip your windows and doors or stuff cracks with cotton.
2. Keep your room at 68 degrees (best heat for health).
3. Heat only the rooms you use all the time.
4. Close bed room doors when windows are open and shut off radiator.
5. When any room is kept at a lower temperature than balance of rooms keep door closed.
6. Protect a hot water radiator in room when windows are open by throwing a blanket or rug over radiator. Radiator may then be shut off without fear of freezing.
7. Use hot water sparingly, as every gallon of hot water wasted means loss of coal.

**Editor of American Coal Journal Offers Suggestions.**

Amedee J. Casey, editor of the American Coal Journal, has been contributing interesting articles on the proper management of household heating equipment to various newspapers throughout the country, and the following is taken from one which he submitted to the "Rochester, N. Y., Times-Union:"

Before starting the winter fire, see that the furnace is absolutely clean. A thin layer of soot exerts as much resistance to heat as ten inches of iron, and dirt has a similar effect. If a hot air plant is used, any cracks should be filled with cement or a new section should be installed in order that the fire-box shall be absolutely gas-tight. See that the cold-air box does not admit too much outside air, especially on very cold days and take care to have the water container in the air jacket always filled with clean water; moist air heats more readily and is more hygienic than dry air.

**Hot Water Heating.**

With a hot-water plant, see that the glass gauge of the expansion tank, which will be found usually at the top of the house, above the level of the radiators, shows the tank to be half full at all times. Open the radiator valves when the fire is started for the season and keep them open until water begins to flow out of them. This permits full efficiency of the radiators by expelling dead air and should be repeated at intervals during the winter. A hot-water plant's success depends upon the radiators being kept full of water and free from air. Before you start the fire for the season draw off the water in the furnace and renew it.

**Steam Heating.**

Do this also with a steam-heating plant and twice a week during the cold weather, draw off a bucketful through the outlet pipe and let a similar quantity of fresh water run in through the inlet pipe. The water gauge should show the boiler to be half full at all times. Too much water wastes steam space and coal, while too little will result in damage to the plant. See that the boiler is absolutely clean and don't fool with the radiator air valves. If these do not work, have a steamfitter put on new ones at once. Neglect is expensive.

**Furnace Heating.**

Read very carefully and follow just as carefully the printed directions which every furnace manufacturer furnishes. He knows more about his own make than you do and his advice is good. These instructions will give full information concerning the proper handling of dampers and this is the most important knowledge you can acquire in connection with the economical handling of a furnace.

The care of the fire differs according to the kind of coal used. Where bituminous, or soft coal is used, it has been demonstrated that a mixture of quarter-inch to three-inch coal is best suited to the average household furnace. With hard coal, the sizes known as egg and stove are the most popular, although good results have been obtained with a mixture of stove and buckwheat coal. The latter is a small size and is cheaper, but not too great a proportion should be used. Do not keep your coal pile near a hot surface; do not mix ashes with the coal in the bins—ashes do not burn. If you use soft coal, dampen it slightly before firing the furnace as this aids in obtaining perfect combustion.

Too much shaking spoils your fire and wastes coal. If the fire is low, put on a little coal and give it time to start burning before shaking. In very very cold weather shake the fire only until a glow appears in the ash-pit. When the weather is mild, leave some ashes on the grates as this makes a slow fire and saves coal. Under no circumstances shake the fire until live coals appear in the ash-pit. Clean out the ash-pit every day and sprinkle the ashes slightly before removing them.

If soft coal is used, the bed of the fire should never be entirely covered because the gases will then be given off faster than they can be consumed and a great deal of smoke and soot will result. One of the best methods is to push back the live coals almost down to the grates and put the fresh coal in the space left. The gases will then pass over the fire and be burned. If the furnace has a round fire-pot, the fresh coal may be piled in the center.

Use plenty of wood and allow it to burn up freely before starting a hard coal fire. Put on the coal in small quantities at first and give it time to burn brightly before adding more. Keep the fire-pot filled to the level of the fire door at all times in order to obtain economical results. This applies to both hard and soft coal. A low fire wastes coal. Do not put on too much coal at one time or the fire will be smothered.

When you fix the furnace for the night, no matter what kind of coal you use, fill the fire-pot with fresh coal to the level of the fire door and allow the gases to burn off. Then close the damper in the ash-pit door and open the check damper. In the morning, shake down the fire and proceed as on the day before.

Use clean coal, keep the furnace clean, keep the fire-pot filled, keep the ash-pit empty, follow the printed rules concerning dampers and you will save money.

**Recovery Had for Extra Work by Owner's Acts.—Liable for Obstruction of Work or Interference.**

With respect to the right of a contractor to recover for extra work made necessary by owner's acts, the rule applies that in every express contract for erection of a building, or for performance of other constructive work, there is an implied averment that persons for whom work is to be done will not hinder, obstruct or delay the contractor, but, on the other hand, will in all ways facilitate performance of the work, says the Supreme Court of New York in the case of Ryder Building Co. vs. City of Albany (176 N. Y. S., 456).

Also, where the representatives or agents of a city obstructed the execution of construction work, the city became liable in damages, measured by the extra expense incurred, although the contract provided that the contractor should not be paid for extras, unless approved by certain officials. Citing another case it was said by that court that, although not expressed in the contract, it was implied by law that "an understanding by all parties that they were to be unrestricted in the employment of means to perform it, and that nothing which it was the duty of the owner to do to enable the contractor to perform, should be left undone." In another case it was said: "It has been frequently held that if a municipal corporation, by its own act, causes the work to be done by a contractor to be more expensive than it otherwise would have been according to the terms of the original contract, it is liable to him for the increased cost of extra work."

Further the court held that where a municipal contractor had finished the foundation of a building and erected metal forms for the purpose of pouring concrete for walls, and an electrical contractor came upon the job, and tore down the forms, necessitating the rebuilding thereof, the city was liable to the contractor for authorizing other contract work to be done, and became liable for damages, measured by the extra expense incurred, although the contract provided that the city was not liable for extras, except where contracted for by certain officers.

And where a city furnished a contractor defective plans for a building, resulting in extra work in the performance of the contract, there was such obstruction by the city as entitled the contractor to damages, measured by the extra expenses incurred, although the contractor provided that contractor should not receive compensation for extras furnished, unless contracted for by certain officials. Likewise where a plumber, under contract with the city, installed certain pipes in the building in such places that they would interfere with the building of a partition which a contractor had contracted to erect, with the result that the contractor incurred additional expenses, there was a breach of the contract by the city, and the contractor could recover damages, measured by the extra expenses incurred, although the contract provided that city should not be liable for extras, unless contracted for by certain of its officials.

Another point was won by the contractor because of interference with his work under his contract. On this the court held that where a contractor completed the walls of a municipal building, leaving window openings of the size specified in the contract, and the city's architects then gave to a sub-contractor of the contractor detailed plans for larger windows than specified, resulting in windows of a larger size being manufactured and brought to the work, thus compelling the contractor to enlarge the window openings at an added cost, there was an interference by the city, acting through its architects, which constituted a breach of the contract and entitled the contractor to damages, although the contract provided that the city should not be liable for extras and modifications, unless contracted for or approved by certain officials.

**England's War Story.**

For vestpocket data on what Great Britain did to stop Germany, keep the seas open, and maintain her empire, consult the following, which is the story from August 4, 1914, to November 11, 1918:

| | |
|---|---|
| Strength of the regular army, reserve, and territorial forces Aug. 4, 1914 | 733,514 |
| England recruited | 4,006,158 |
| With other white enlistments in the United kingdom and the colonies, the total white enlistment in the empire was | 7,130,280 |
| The figures for races other than white (including over 1,250,000 from India) were | 1,524,187 |
| Giving a grand total of all races of the empire | 8,654,467 |

In addition to these Chinese and other labor units were raised for service in Egypt, Mesopotamia, and Salonika.

The following were the total casualties of the armies of the British empire up to the end of 1918:

| | Officers | Other Ranks | Total |
|---|---|---|---|
| Killed | 38,264 | 628,569 | 666,833 |
| Wounded | 92,142 | 1,948,378 | 2,040,520 |
| Missing and prisoners | 11,958 | 342,610 | 354,568 |
| Total | 142,364 | 2,919,557 | 3,061,921 |

**Looking for Big Loans.**

After the pending Belgium loan of $50,000,000 is out of the way in this country the banking interest expects to handle a demand for the British and French governments aggregating as much as $250,000,000. Great Britain needs $134,000,000 to meet maturing notes November 1, but desires to make the total loan $16,000,000 larger. The French loan will be a new offering. It is Wall Street comment that the French seem to think that they should be able to borrow 1,000,000,000 in the United States without any trouble, and that they seem to feel that it should be almost a matter of course that they should sell $500,000,000 of bonds in the United States. It is said that American banks do not look upon the credit in just this way, and may not be inclined to grant more than $100,000,000 to France. Three French cities, as distinct from the government, are to receive a loan of $145,000,000. These are Bordeaux, Lyons and Marseilles.

# NOTES *on the* PRINCIPLES, TYPES *and* INSTALLATION *of* VACUUM CLEANING SYSTEMS

*Last of Two Articles Presents Information of Value to Both Master Steam Fitter and Master Plumber Interested in This Line of Work*

*By* Charles L. Hubbard

(Continued from Page 64 in the October 11th Issue.)

### Types of Apparatus.

While certain types of machines have already been shown in discussing certain details, we wil now include a few others for the purpose of illustrating the general construction and arrangement of the different parts. While these are standard machines and representative of their various types, their selection for purposes of illustration does not indicate that they are more desirable for commercial purposes than certain other machines on the market of equal grade.

A machine is built in 1 and 2 sweeper sizes, makes use of a direct motor drive and employs a rotary exhauster in connection with a complete separator. This is the same machine as shown in section in Fig. 8, except in that case a belted motor is employed.

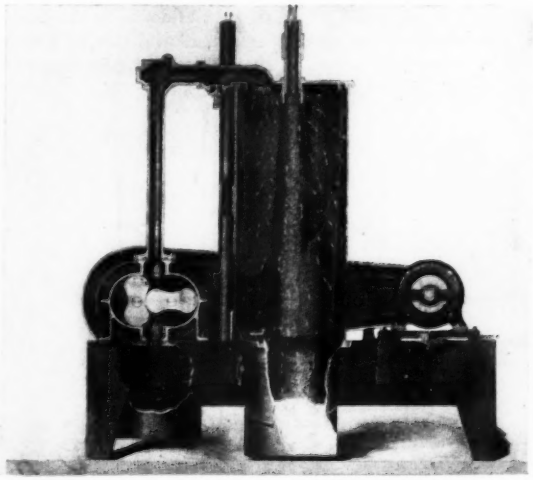


Fig. 8.

Another make of similar type is made in sizes of 1 to 3 sweepers inclusive. The exhauster is of the rotary type driven by a belted motor, and complete separation is secured by the dry method.

A larger machine of the same general type, built in sizes from 2 to 6 sweeper capacity, is illustrated in Fig. 9. This is driven by a direct connected motor and makes use of a separator of the form shown in section in Fig 7.

In Fig. 10 is one of the smaller sizes of a machine employing a centrifugal exhauster of the multi-stage type. This is shown at the left, and is of the vertical form with the motor mounted at the top. A dry separator is used with this machine, as indicated at the right.

A horizontal exhauster of the same type, having a 6 sweeper capacity is connected with a separator of the proper size, similar in form to that shown in Fig. 10.

A portable machine can be obtained for factory use where it is not desirable to install long runs of horizontal piping, and also where a short hose is more convenient to use around the machinery.

### Vacuum and Air Volume.

The amount of vacuum required will vary with the class of work to be done and is commonly known as "high," "medium," and "low' vacuum. High vacuum, as designated by the U. S. Government in its requirements for Federal buildings some years ago, called for the exhaust of 40 cu.

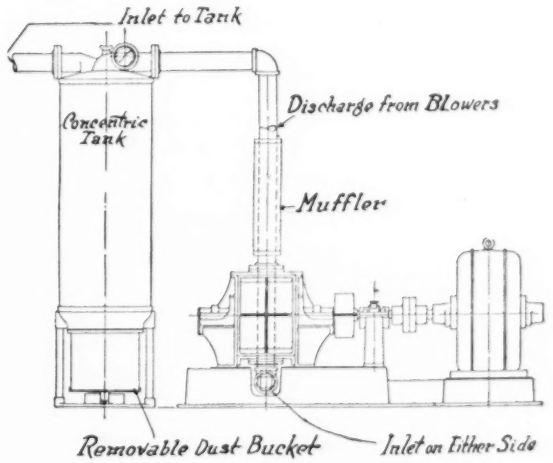



Fig. 9.

ft. of air per sweeper per minute under a vacuum of 12 inches of mercury. A medium vacuum called for 50 cu. ft. of air per minute under a 9-inch vacuum, and a low vacuum, 60 cu. ft. of air per sweeper per minute under a vacuum of 6 inches of mercury. More recent practice tends to lower vacuums, as the higher ones are likely to injure the carpets on which they are used, and from 2 to 3½ inches at the cleaning tool is more common for ordinary work.

Modern piping installations are now made with a view to keeping down the frictional resistance so as to reduce the

drop between the separator and cleaning tool, thus lowering the necessary vacuum at the exhauster.

It was formerly thought that a high vacuum of 11 or 12 inches at the machine was required in tall buildings of 10 stories or more in order to maintain the necessary suction at the cleaning tool or renovator, but some of the tallest

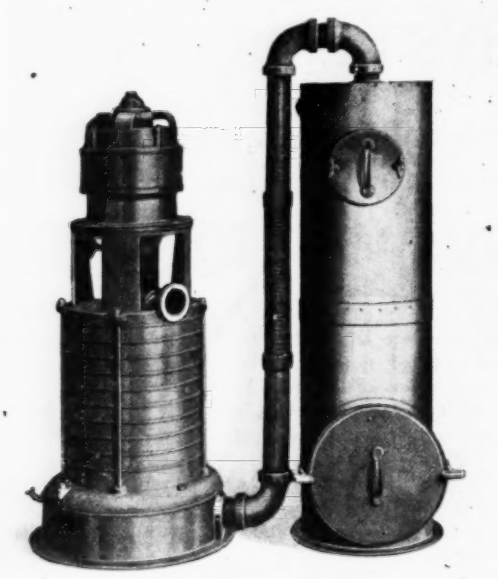


Fig. 10.

buildings in New York are equipped with turbine exhausters operated on a 6-inch vacuum, and the piping so proportioned that ample suction is produced at the renovators.

M. S. Cooley in his book on "Vacuum Cleaning Systems" considers that for the best results the vacuum should not be less than 3½ inches of mercury at the renovator, and that at least 2 inches is necessary to do even fair work, while, to

at the tool of not less than 3 inches of mercury back of an orifice 5/8-inch in diameter for residential work, and not less than 3½ inches for apartment buildings, theaters, hotels, etc. For school buildings and other rooms with bare floors, the vacuum at the tool should not be less than 2 inches of mercury back of a 7/8-inch orifice. In any special case it

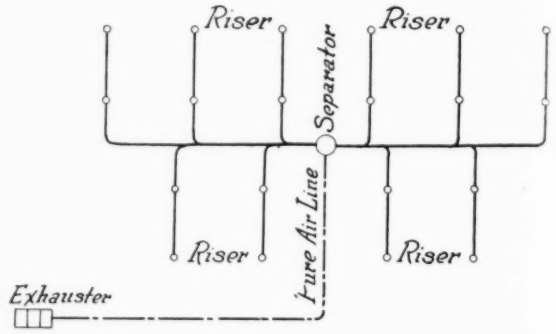



Fig. 11.

is well to let the manufacturers of the equipment fix the best vacuum to be employed for the given conditions to be overcome, and the type of cleaning tool to be used, as this will vary somewhat in different cases.

It must be distinctly remembered that the vacuums noted above are those required at the tools, and due allowance must be made for the frictional resistance of the pipe lines and hose connections when determining that at the exhauster or separating chamber.

### Pipe Lines.

The arrangement of the pipe lines and risers will depend somewhat upon the type and size of building.

The first step is the location of the risers, which is determined by the allowable length of hose attached to the cleaning tool. While some authorities recommend this be limited to 50 ft., experience seems to show that it may be increased to 75 ft. to advantage.

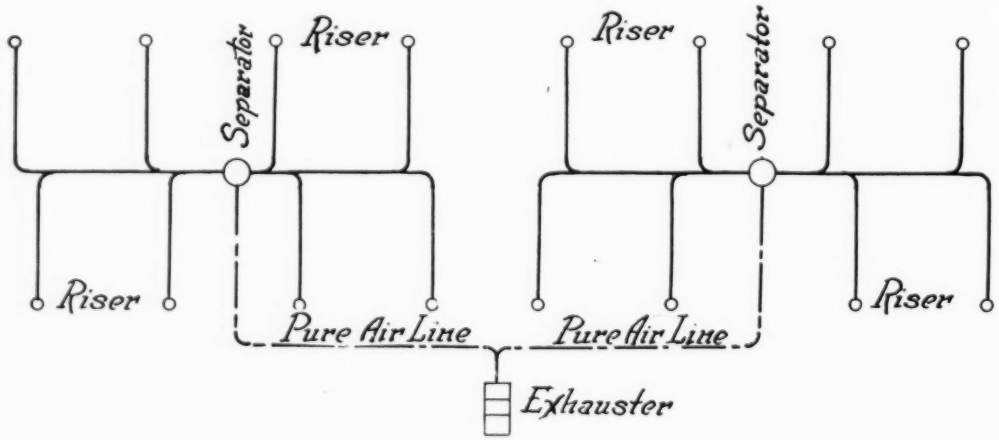



Fig. 12.

permit easy operation and prevent any undue wear on the carpets, it should not be higher than 5 inches.

The makers of the machine shown in Fig. 9 recommend 60 cu. ft. of air per minute per sweeper as a standard in computing all jobs and pipe layouts. With this quantity of air there should be obtained under the worst conditions a vacuum

While this increases the friction and power slightly, it seems to be offset by the reduced number of risers and the less time required in shifting the hose from one outlet to another.

The quickest way to determine the number of risers in any given case is to cut a piece of string to a length repre-

senting 75 feet on the scale of the drawings, and run this over the floor plans, using corridor doors for access to rooms.

The risers should be located so that every point can be reached with one end of the string while the other is attached at one of the riser locations.

In general, the separator at least should be centrally located in order to equalize the vacuum as much as possible in the different lines. This can often be done, even though it may be necessary to place the exhauster some distance away in order to bring it near other machinery or in a room where its presence is not objectionable.

An arrangement of this kind is shown in Fig. 11.

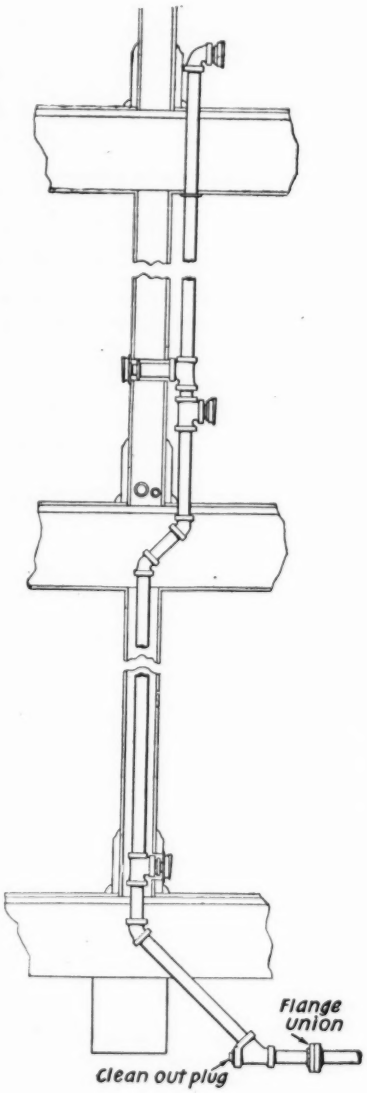



Fig. 13.

In still larger systems two or more separators may be used at centers of groups of risers, as illustrated in Fig. 12. When the latter arrangement is used the vacuum at each separator must be equalized by a vacuum controller in the pure air line leading to the exhauster. A device of this kind is similar in principle to a pressure reducing valve and operates automatically, thus overcoming differences in pipe friction and volumes of air passing through the different separators. As the air flowing through the controlling valves to the exhauster is pure, there will be no danger of clogging. A typical riser and outlets on the different floors are shown in Fig. 13. All horizontal piping should be given a pitch of at least one-eighth inch per ft. toward the machine so that dirt, which settles in the pipe, will tend to roll in the right direction. Clean-out plugs should be inserted in the pipes and risers at sufficiently frequent intervals so that obstructions may be reached at practically all points. These should be of a uniform size of 2 inches and made of brass to prevent rusting and sticking.

Flange unions should be placed in the horizontal pipe near

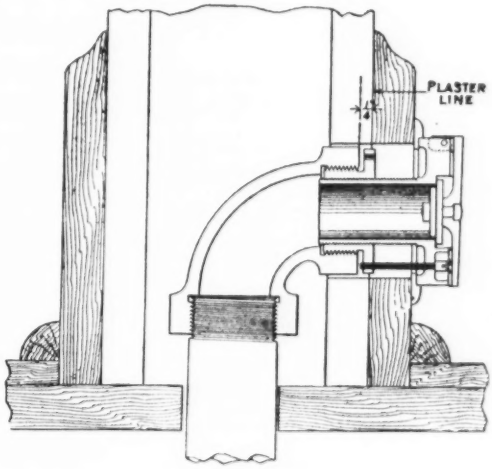



Fig. 14.

the foot of each riser, also near the machine and at such other points as may be necessary for disconnecting for examination or clearing out stoppages, which are not easily accessible from the clean-out plugs. Standard wrought iron or steel pipe is used for this work, in connection with recessed drainage or "Durham" fittings with sweep bends. The fittings should be standard weight cast iron with internal diameter same as the pipe.

The ends of the pipe should be cut square, reamed to full size and screwed in against the shoulder of the fittings to make a perfectly smooth interior (See Fig. 15).

Typical inlet valves for hose connection with the riser are shown in Fig. 14 and 15; the first of these occurring at the top of a riser and the second on an intermediate floor. Both patterns are self closing, being held tight by the suction effect. They are of the "flap" type, being hinged at the top and project but slightly beyond the baseboard. The valve shown in Fig. 15 is designed especially for public buildings, being provided with a special key for opening. This cut also illustrates the location of clean-out plugs for both horizontal and vertical pipes. In determining the size of pipes and risers, three factors are considered, as follows: frictional resistance, air velocity and danger of obstruction.

The first item has been pretty carefully computed for practical working conditions, and only results as applied to general conditions will be considered. For low vacuum plants, the suction lines should in no case be smaller than 2 inches in diameter, except where a drop is taken off at the basement ceiling. These drops should be 1½ inches in diameter in order to give an increased velocity to carry the dirt through the vertical distance from the floor tool to the ceiling pipe.

One reason for limiting the minimum pipe size to 2

inches is illustrated in the lower cut in Fig. 16. Matches are perhaps the most frequent cause of stoppage in pipe lines, and this can be largely avoided by the use of pipe of sufficient size to permit the match to turn a complete somersault within the pipe whenever one end catches on some slight obstruction. A 2-inch pipe is just large enough to

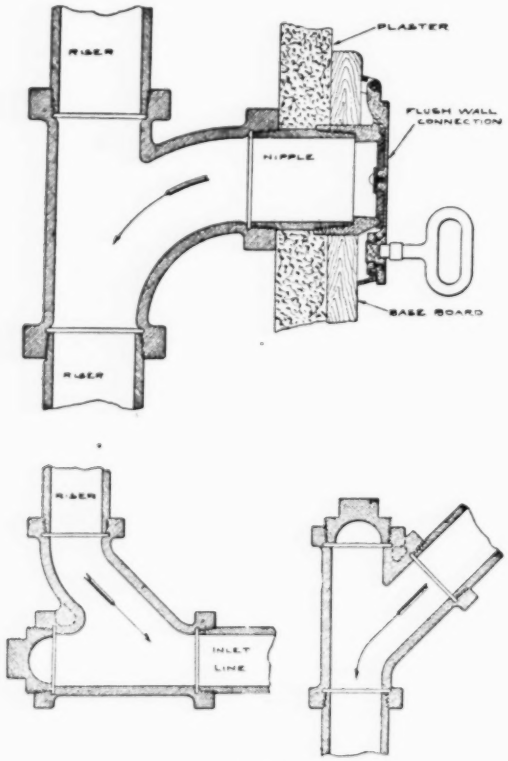



Fig. 15.

permit this, while a size smaller is likely to produce the effect shown in Fig. 16. In like manner a standard bank pin will make trouble in a 1-inch hose.

Friction in the pipe line tends to increase the vacuum to be maintained and therefore the power to be expended at the exhauster; hence, it should be kept as low as possible by using pipe sizes as large as other conditions will permit.

The limiting factor for sizes, above 2 inch, is the air velocity which should not be less than about 2,500 feet per minute, if the dirt is to be lifted to any extent, and also in horizontal pipes, unless the latter are flushed out frequently under a higher pressure. For vertical pipes in which the flow is downward, the velocity does not matter so much, as the dirt will be carried along with much less force.

The velocity produced by different volumes of air flowing through pipes of different diameter is given in Table I.

In determining the sizes of the risers above 2-inch, it is customary to assume that one-half the sweepers will be on at one time, and to allow the equivalent of one-inch pipe for each high vacuum sweeper and one 1½-inch pipe for each low vacuum sweeper.

For proportioning the size where several branches are brought together, a table of pipe equivalents should be used. At the same velocity of flow, the volume delivered by two pipes of different size is in proportion to the squares of their diameters; thus, one 4-inch pipe will deliver the same volume as four 2-inch pipes. When frictional resistance is taken into account, it is found that with the same pressure head the velocity will be somewhat less in the smaller pipe, varying about as the square root of the fifth power. Table II has been computed on this basis and will be found convenient in proportioning the various branches. The figures opposite the intersection of any two sizes is

**Table I.**

Velocity in feet per minute for various volumes of air through pipes of various sizes.

| | DIAMETER OF PIPE IN INCHES. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Cu. Ft. | 1½ | 2 | 2½ | 3 | 3½ | 4 | 4½ | 5 | 5½ | 6 |
| 25 | 2028 | 1146 | | | | | | | | |
| 35 | 2720 | 1602 | | | | | | | | |
| 40 | 3240 | 1830 | 1154 | | | | | | | |
| 45 | 3660 | 2058 | 1320 | | | | | | | |
| 50 | 4080 | 2292 | 1464 | | | | | | | |
| 60 | 4860 | 2748 | 1746 | 1218 | 894 | 687 | 544 | 438 | 360 | 304 |
| 70 | 5700 | 3204 | 2040 | 1422 | 1044 | 802 | 634 | 513 | 424 | 354 |
| 80 | 6390 | 3666 | 2340 | 1626 | 1194 | 916 | 724 | 587 | 484 | 403 |
| 100 | 8148 | 4770 | 2934 | 2074 | 1494 | 1145 | 840 | 733 | 606 | 508 |
| 120 | | 5490 | 3516 | 2442 | 1800 | 1380 | 1086 | 840 | 726 | 600 |
| 140 | | 6414 | 4104 | 2850 | 2100 | 1602 | 1260 | 876 | 848 | 608 |
| 180 | | | 5280 | 3660 | 2676 | 2058 | 1620 | 1320 | 1080 | 917 |
| 210 | | | | 4260 | 3120 | 2400 | 1860 | 1510 | 1272 | 1068 |
| 240 | | | | 4860 | 3428 | 2742 | 2172 | 1740 | 1452 | 1212 |
| 260 | | | | 5292 | 3840 | 2976 | 2340 | 1908 | 1560 | 1312 |
| 300 | | | | 6108 | 4490 | 3432 | 2710 | 2196 | 1818 | 1500 |
| 340 | | | | | 5040 | 3846 | 3036 | 2490 | 2040 | 1687 |
| 360 | | | | | 5294 | 4122 | 3158 | 2700 | 2172 | 1830 |
| 400 | | | | | 5400 | 4626 | 3660 | 2958 | 2424 | 2028 |
| 420 | | | | | | 4800 | 3780 | 3065 | 2544 | 2136 |
| 450 | | | | | | 5160 | 4020 | 3306 | 2700 | 2286 |
| 480 | | | | | | 5460 | 4320 | 3516 | 2907 | 2442 |
| 500 | | | | | | 5700 | 4524 | 3669 | 3030 | 2532 |
| 540 | | | | | | | 4800 | 3960 | 3270 | 2748 |
| 600 | | | | | | | 5800 | 4392 | 3635 | 3048 |

the number of the smaller size pipes required to equal one of the larger. Thus, one 4-inch pipe is equal to 5.7 2-inch pipes.

**Table II**

| Diam. in. | 1 | 1½ | 2 | 2½ | 3 | 3½ | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 12 | 14 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1½ | 2.8 | 1 | | | | | | | | | | | | | | |
| 2 | 5.7 | 2.1 | 1 | | | | | | | | | | | | | |
| 2½ | 9.9 | 3.6 | 1.7 | 1 | | | | | | | | | | | | |
| 3 | 15.6 | 5.7 | 2.8 | 1.6 | 1 | | | | | | | | | | | |
| 3½ | 22.9 | 8.3 | 4.1 | 2.3 | 1.5 | 1 | | | | | | | | | | |
| 4 | 32 | 11.7 | 5.7 | 3.2 | 2.1 | 1.4 | 1 | | | | | | | | | |
| 5 | 55.9 | 20.3 | 9.9 | 5.7 | 3.6 | 2.4 | 1.7 | 1 | | | | | | | | |
| 6 | 88.2 | 32 | 15.6 | 8.9 | 5.7 | 3.8 | 2.8 | 1.6 | 1 | | | | | | | |
| 7 | 130 | 47 | 22.9 | 13.1 | 8.3 | 5.7 | 4.1 | 2.3 | 1.5 | 1 | | | | | | |
| 8 | 181 | 66.7 | 32 | 18.3 | 11.7 | 7.9 | 5.7 | 3.2 | 2.1 | 1.4 | 1 | | | | | |
| 9 | 243 | 88.2 | 43 | 24.6 | 15.6 | 10.6 | 7.6 | 4.3 | 2.8 | 1.9 | 1.3 | 1 | | | | |
| 10 | 316 | 115 | 55.9 | 32 | 20.3 | 13.8 | 9.9 | 5.7 | 3.6 | 2.4 | 1.7 | 1.3 | 1 | | | |
| 11 | 401 | 146 | 70.9 | 40.6 | 25.7 | 17.5 | 12.5 | 7.2 | 4.6 | 3.1 | 2.2 | 1.7 | 1.3 | | | |
| 12 | 499 | 181 | 88.2 | 50.5 | 32 | 21.8 | 15.6 | 8.9 | 5.7 | 3.8 | 2.8 | 2.1 | 1.6 | 1 | | |
| 13 | 609 | 221 | 108 | 61.7 | 39.1 | 26.6 | 19 | 10.9 | 7.1 | 4.7 | 3.4 | 2.5 | 1.9 | 1.2 | | |
| 14 | 733 | 266 | 130 | 74.2 | 47 | 32 | 22.9 | 13.1 | 8.3 | 5.7 | 4.1 | 3.0 | 2.3 | 1.5 | 1 | |
| 15 | 871 | 316 | 154 | 88.2 | 55.9 | 38 | 27.2 | 15.6 | 9.9 | 6.7 | 4.8 | 3.6 | 2.8 | 1.7 | 1.2 | |

Mains leading from machines should correspond with the outlets left by the makers, which for standard machines are approximately as follows:

**Table III.**

| Capacity, in Number of Sweepers. | Diameter of Pipes for High Vacuum. | Diameter of Pipes for Low Vacuum. |
|---|---|---|
| 1 | 2 and 2½ inch | 2½ and 3 inch |
| 2 | 2½ and 3 inch | 3 and 4 inch |
| 3 | 3 and 4 inch | 4 and 5 inch |
| 4 | 4 and 5 inch | 4 and 5 inch |
| 6 | 5 and 6 inch | 5 and 6 inch |
| 8 | 5 and 6 inch | 6 and 8 inch |

### Cleaning Tools or Renovators.

The form and size of cleaning tool depend upon the vacuum carried and the kind of work to be done. This varies somewhat with various manufacturers, but in general the slot does not exceed 12 inches in length with a uniform width of ¼ to ⅜ inch, although some have been made with a narrower slot. The width of face on each side of the slot is limited to ⅜-inch. This is adapted to residence work and similar conditions where the amount of dirt is not excessive and where there is no coarse litter which is too large to pass through the slot.

With a high degree of vacuum this has a tendency to

(Continued on Page 201.)

# VENTILATING EQUIPMENT REDUCES MORTALITY DURING WINTER

*High Death Rate in Colder Months and Monetary Losses in Industry Due to Sickness Can Be Minimized by Installation of Proper Mechanical Equipment*

*By* E. Vernon Hill

Chief, Sanitary Bureau, Chicago, Including Heating and Ventilation
Vice-President, American Society of Heating and Ventilating Engineers.

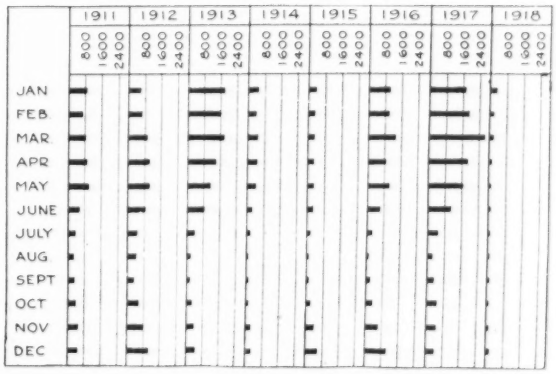
A thousand years ago civilized man knew little about the prevention of disease. When the ravages of some pestilence smote him, his only recourse was prayer and sacrifice, believing as he did that disease was a manifestation of the wrath of the Supreme Being. Reading the medical history of those days impresses us with the appalling ignorance that prevailed, but makes us wonder how they could overlook the filth caused by utter lack of sewerage systems, contaminated food and water supply and the other insanitary conditions that prevailed, the actual cause of the spread of the pestilence. We read of the Bubonic Plague between A. D. 500 and 1000, spreading from the Nile or the Tigris and Euphrates rivers over the entire world, taking a toll of 5,000 human lives daily. We read of smallpox spreading in a virulent form from city to city, decimating the population, and in some instances wiping out practically every human being in a town.

We can look back complacently at the ignorance of sanitation exhibited by civilization so-called in these early times, and pride ourselves on the progress we have made. Still there are good reasons for stating that our knowledge at the present time, or at least the application of this knowledge, has not been carried to a sufficient length to warrant undue pride or complacency on our part. We still have an enormously high death rate from certain diseases, which could be prevented, if the people at large were awakened to the seriousness of the situation.

Chart 1, from the Octennial Report of the Department of Health of the City of Chicago, shows the death rate from scarlet fever from 1911 to 1918, inclusive, by months. It appears in the report to emphasize a reduction in the rate, particularly during the past four years, due to the Department's activity in obtaining a clean milk supply and its care in isolating infectious cases. I reproduce it here to show the comparatively high death rate during the winter months. Without exception the rate begins to increase in September, increasing gradually until the middle of winter, then slowly decreasing again until the summer months return. The explanation of this is as follows: First, and probably most important, is the convening of the schools in the month of September. At this time the children are brought together in the class rooms for about five hours each day. True, they are together at play during the summer months, but in this case they are in the open air. In the school room they are brought into more intimate contact, and the spread of contagious diseases is the result.

The second cause for the increase during this time is

**Chart I.—The Death Rate of Scarlet Fever. Cases Reported by Months, 1911 to 1918.**




that the children are subjected to unnatural and to more or less insanitary conditions in the school room, due to improper ventilation, the inhalation of infectious dust, etc., commonly prevailing in the ordinary school class room.

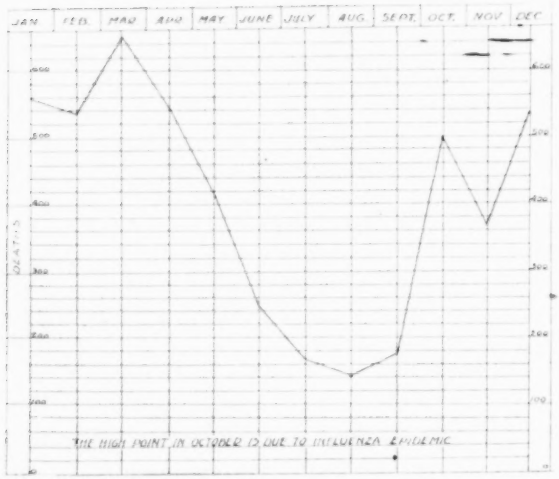
The combination of the two conditions is responsible for the high death rate during the winter months from scarlet fever.

The second chart shows the death rate from pneumonia by months in Chicago. It is compiled from the average monthly rate for the past ten years. A glance at the curve shows clearly the low rate in the warm summer months, the rapid increase as the weather becomes colder, and the decrease in the spring months as the weather becomes warm again.

The curve for pneumonia is typical of all the foul air diseases, which include tuberculosis, bronchitis and the ordinary form of LaGrippe as well as pneumonia. There

is only one logical explanation for the high death rate from these diseases during the winter months. In the summer we live to a much greater extent out of doors. Our recreation is taken largely in the open air, and even in our workrooms and places of amusement the windows are thrown open and we live under atmospheric conditions such as nature intended. In the winter the

Chart II.—The Death Rate of Pneumonia. The Average per Month for Ten Years.




situation is changed. As the weather becomes colder we spend more and more time inside and less time out of doors. The dry heat, the low humidity, the excessive amount of dust which we inhale, usually a direct cause of the former, and the many other unfavorable conditions, which are all properly classed under the heading of "Improper Ventilation," are responsible for the rapidly rising death rate which amounts, it is conservatively estimated, to not less than 100,000 human lives each year in the United States alone. This is many more than the number of American soldiers killed during the entire European war. This enormous number of preventable deaths occurs year by year, and we do not stop to think to what extent each one of us is individually responsible for the same.

Not only the loss in human life but the monetary loss due to sick persons being out of work, the expense incurred in other ways makes it a problem that should receive more serious consideration than it has in the past.

The pity of it all is, that it is preventable. The science of ventilation has progressed sufficiently so that we know what conditions are favorable and what unfavorable, and a competent engineer at the present time can install a mechanical equipment in a factory, workshop or school, that will in a very great measure, at least, correct these conditions. In so doing the employer of labor in factories not only reduces materially the death rate from these diseases, but he increases the efficiency of his employes and increases the output from his factory. Innumerable instances could be cited to prove this assertion and its corollary, which is that, where any large number of men are employed, the cost of providing a well designed mechanical equipment for heating and ventilation is returned in dollars and cents to the owner within a few years. Not only is this true of factories; it is true in the case of theatres and other places of amusement. It is becoming the accepted view with regard to our schools.

We have had many drives in the past few years by charitable organizations and other institutions to raise funds for many worthy individuals. It is high time that those interested in the health of their respective communities, the labor organizations who are doing much to protect their members, employers also from a purely commercial standpoint if from no other, the engineers, in fact all good citizens, as the matter vitally affects each and every one of us, should join in a *drive of education* to bring to the fore-front the world-wide importance of this problem.

## DON'T BREAK HIS SPIRIT.

The man or woman who criticises to the extent of damaging the future of a disabled soldier, sailor or marine is deserving of but small consideration. Yet instances of such criticism are met with daily by the Federal Board for Vocational Education.

Such criticism is invariably due to one of two things; ignorance or misinformation. But in either case it tends to discourage some worthy veteran of the great war. Through such discouragement the very man this great Government is seeking to reach, becomes morose, discontented and threatens to drift into a state where he will not only be a handicap to himself, but to the community in which he lives.

Now it is as bad to criticise the blundering critic, without offering a practical remedy, as it is for the blundering critic to find fault with a great and wonderful institution, so to accomplish the purpose of this article a few practical suggestions are set down, which it is hoped, will prove of some value.

Don't tell a handicapped soldier, sailor or marine that the Government is not trying to help him. You are possessed of a strong body, exert your strength to the extent of seeing that the handicapped man meets an officer of the Federal Board for Vocational Education.

Don't dismiss the matter with a wave of your hand. That handicapped man gave his all, sacrified his future to help you retain your strength and vigor. Every citizen of this country, who did not go to war, should extend a helping hand to the man who did.

You know that the Government has provided for the rehabilitation of our disabled men. You are a part of the great Government which is providing such training, so every time you fail to help the disabled man to get in touch with the institution which has been established for his benefit, you are furthering the German cause and proving unworthy of the citizenship you so proudly boast of.

Remember that your criticism may destroy the faith of some man who suffered so that you might prosper; that a maimed and broken body produces a timid and warped spirit; that souls have perished through criticism which destroyed faith.

The cause is too great to allow petty jealousy and spite to dominate. Be a booster for humanity. Examine yourself, see if you are without fault, before you attempt to find flaws. You are your brother's keeper. Unite, cooperate and let us help each other!

A washing-machine manufacturer advertises "Don't Kill Your Wife! Let the Double-Tub Washer Do Your Dirty Work."

# OVERHAULING *the* PLUMBING *in an* OLD COLONIAL MANSION

*Planning the Water Works and Making a Comprehensive Sketch of the Outside Plumbing*

*By* Robert J. Gordon

IN the September 27th issue we described the testing of the plumbing in an old colonial mansion in the country, which was purchased by Mr. Adams, a successful business man in a neighborhing city.

Mr. Jones, an experienced plumbing contractor in a country town near the mansion, was called to meet the owner and his wife on the grounds, to see what could be done in the way of modernizing the old plumbing system. He applied a smoke test, which proved to Mr. and Mrs. Adams, that the old piping system was very insanitary, leaked sewer gas and had to be overhauled or entirely replaced with a new system.

In the October 4th issue we described an interesting meeting between the owner and the contractor at which a gentleman's agreement was made, whereby the plumbing contractor was engaged to overhaul and renew any, or all, of the plumbing system, on a cost-plus-percentage basis, which included his overhead ratio.

Chapter II found Mr. Jones and the lucky plumbing contractor and "Si," his faithful old bookkeeper, busy making a plan of the proposed new house drainage work for the approval of Mrs. Adams, who would superintend the work as it progressed. The contractor made the drawing in pencil and "Si" was left to finish it in ink and colors.

### Chapter III.

The next morning Si was ahead of everybody as usual. When Jones reached his office about five minutes before the men, he found the plan of the basement plumbing neatly and completely finished. The pencil lines, which he had laid out on the sheet the afternoon before, were all neatly inked in with waterproof India ink, the drawing was rubbed clean with soft sponge rubber, the important parts were colored with delicate shades, which suggested artistic talent on the part of the bookkeeper. Even the titles were lettered brilliantly and Jones' name was neatly printed in the lower right-hand corner.

Jones leaned over the drawing board, admiring the work; "Full many a flower is born to blush unseen, and waste its sweetness on the desert air," he murmured to himself, as he thought of Si and his neglected opportunities in art.

"How do you like it?" asked Si edging over timidly as if expecting a rebuke.

"Like it," replied Jones, slapping him affectionately on the shoulder, "fine—fine—couldn't be better, even if I had done it myself."

Si, half approvingly and half disapprovingly, said: "You couldn't sit long enough to do that work."

The bookkeeper was right. The eternal thrill of modern business, even in a moderate sized country town, had worn on Jones' nerves so that it was difficult for him to sit down and patiently plod at a desk.

He had to be "up and doing" all the time. That is one of the penalties of being a boss. The mechanics never feel that way. When their work is done, they relax in an enviable fashion, unless, of course, they are unfortunately agitated into tension and discontentment, by radical labor leaders.

The Boss, as a rule, is busy night and day, figuring on work or planning how to keep his men busy. Jones was one of that kind. He hated to lay off a man. It hurt him personally, for he liked his men; and his men liked him. He even liked the grouchy Si—and strange to say, Si really was fond of Jones.

Isn't that a fine spirit to prevail in a business—employer and employes in sympathetic touch and brotherly friendship—all working with the same object in view—the general welfare of the business, and the entire satisfaction of all customers? That ambition means success—and Jones' business was really successful, even if keen competition had frequently prevented him from obtaining that fair profit, which every contractor is entitled to.

But we are wandering from the main point, namely, the old colonial mansion job.

"Yes, your coloring is fine, Si," said Jones again complimenting the old gentleman, "it gives the drawing a tone which I am sure will appeal to Mrs. Adams."

"There you go again," exclaimed the bookkeeper, sardonically, "if you talk that way, you'll make me believe that the sketch is a bluff after all."

"Oh, shucks, Si, that Puritanical instinct of yours will be the death of us both yet," said Jones, smiling. "Don't you understand that Mrs. Adams would never be able to unravel the piping from the building lines, if paint was not used to define clearly the different parts. When she looks at this drawing she sees the walls red, the ground sepia, the floor and wooden walls light yellow, the house drainage piping all standing out strong in a rich blue, and the roof water lines all deep orange. It's all simple and clear now. She cannot help understanding it.

"Say, Si," he continued, "did you ever hear a successful huckster shout 'fish—fish—plain fish' for sale?"

"I've heard them shout their wares, but not exactly in those words. Let me see—yes—they invariably shout—'Fish, fish—fresh fish—fine fresh fine'—or something like that."

"They use the word 'fresh' to give the fish a tone," said Jones. "If they omitted that adjective they would sell no fish—see."

"I see," replied Si as he fumbled through the morning mail. "Here's one for you in a lady's hand writing, too."

"It's from Mrs. Adams," said the contractor. "She wishes me to meet her at the mansion this forenoon at ten. That's good. I'll go there now, study all the conditions and have a definite comprehensive plan ready when she arrives."

"Haven't you got it now?" Si asked as he pointed to the rolled up sketch neatly tucked under Jones' arm.

"No," replied the contractor, "this is only part of the job. There are lots of other things to come yet. There's the water works and—say, what's the matter with installing an electric light and power plant, too?"

"Punk," growled the bookkeeper. "Let the shoemaker stick to his last. What do you know about electricity? You, a plumbing and heating contractor. We're not in that line. Take up electric work? Such nonsense. The electricians in this neighborhood are all starving now—keep away from—"

"Listen, Si," interrupted Jones, "that's exactly the reason I'm going to install an electric plant, too."

"What?" exclaimed Si, "are you going dippy? We have no men and no tools for such work," and the bookkeeper looked at the Boss in a pitying way.

"Listen, Si, old boy," said Jones, "I'll hire electricians. There's Williams, the electrical contractor. He's all right. I'll sublet that part of the work to him."

"Oh," exclaimed Si, "but you'll be responsible for it just the same."

"Certainly—I'll be responsible. I want to be. But Williams will be responsible to me and I have faith in Williams."

Si ran his fingers through his hair again (the old thinking habit). "Well, I guess that will work out O. K., if you get Mrs. Adams to see things your way," he mumbled. "But," he continued, "watch Williams' men and see they give the lady a square deal."

Jones immediately got busy. He laid a satchel on the desk, and placed in it a catalogue of high-grade plumbing fixtures, a pneumatic water nipple system catalogue, electric system and fixture catalogues, a steam and hot water boiler and radiator catalogue, a sprinkler and fountain catalogue, and a note book, a sketch pad, a pencil, rubber and tape line. These he crowded into the satchel, while Si looked on in amazement.

"Why don't you take the whole shop?" he enquired.

"I will if I need it," he replied, laughing.

"In the meantime I'll just take Bill, the journeyman plumber, and Tom, the steam fitter. I may need them. Call them."

Soon the Boss, Bill and Tom were speeding toward the mansion. They arrived about 8:30, an hour and a half before the time appointed to meet Mrs. Adams.

"Tom," said Jones, "you go through the house and size up the old heating system and see what can be done in the way of installing a hot water system. Measure the rooms, figure out the radiation and the size of the boiler, so I can talk intelligently to Mrs. Adams. Meet me on the front porch at 9:30 with the data. Don't make any sketches. Just get the data, but get it right. If you want help to measure the rooms call the caretaker. He will lend you a man.

"Bill," he continued, "you come with me. We propose installing three bathrooms on the second floor. One on the third floor, a toilet off the main hall, also kitchen sink, etc., on the first floor, and hydrants outside, etc.

"The first thing we do is to hunt a good source of water supply. You find the caretaker now. Scoot, time is short."

Bill was saved the trouble, however, for the caretaker appeared on the scene.

"Good morning, gentlemen," he said, shaking hands with both men cordially.

"We are to meet Mrs. Adams here at ten," said Jones and I want to go over the grounds with you first. Can you spare me an hour?"

"Certainly," replied the affable caretaker, as Jones slipped a crisp two-dollar bill in his hand, "what can I do for you?"

"First show us where you have been getting the water for all these buildings," replied Jones. "Then lead us all over the grounds showing all the buildings and laundry lines, etc."

"Follow me," commanded the caretaker as he started directly for a clump of woods at the brow of the hill which overlooked a creek, or stream, located a few hundred yards from the mansion. "The best water is down this way, but it's hard to get at." They followed him in Indian file down through the woods on a winding narrow path which evidently was well patronized.

"There's a fine never-failing spring down here a ways," he said as he pushed the brush wood aside. "We never drink any other water hereabouts, since the doctor condemned the well when there was a typhoid case in the manion several years ago.

"That's it," he continued, pointing to a clear, cool, inviting pool of water under the shade of a large tree. "That spring never runs dry. It's cool and clear all the time and runs as much in the driest season as you see it now. Yes, this is the best spring in the country, but it ain't piped up to the house as it should be."

"Get a 12-quart pail, Bill, and let's measure the overflow," said Jones. "We will find out if this spring is big enough to furnish the whole place with water."

Bill disappeared promptly from view in the bushes.

"How long have you folks been drinking this water?" enquired Jones.

"At least four and sometimes more than ten of us have been drinking it for nigh on ten years," replied the caretaker, "and we are alive and kicking yet."

"That's pretty good proof that the water is not poison, anyhow," interrupted Jones. "But," he continued, reflectively, "I think it would be well to have it analyzed by the state bacteriologist and chemist."

"Take my word for it, Mr. Jones, and I have no reason to tell you a lie about it either, this here spring is the finest water in the country. Yes, sir. Folks have lived on this here water off and on for years, and they ain't dead yet."

"That's the proof of the pudding—eh," said Jones, smiling and handing a cigar to the caretaker, "and I'm glad to hear you talk so well of this spring, for, according to all appearances, we may need this water for the new owner's use up in the mansion, providing it flows enough. Here's Bill with the pail. We will soon know now."

The outlet was in the form of a piece of 2-inch iron pipe run through the bank of the spring hole. Its open and flowing mouth was sufficiently high to get the pail under it. Jones with watch in hand, stood near the overflow. At a given signal Bill slipped the pail under the pipe. Jones kept his eyes on the second hand of his watch. Bill studied the water as it rapidly filled the pail. The caretaker sat on his heels alongside of Bill, smoking peacefully and enjoying the scene.

"Time," shouted Bill suddenly.

"Two minutes and five seconds," remarked Jones, returning the watch to his pocket and extracting a pad and pencil.

"That is practically three gallons in two minutes, or 90

gallons per hour, or 2,160 gallons in 24 hours. Some water."

"That's enough for 50 people," said Bill, "allowing 40 gallons per person per day."

"But what about the stock, if they keep any? The barn can hold 6 horses and 20 cows, not including the bull and the calves," said the caretaker, "and the pig pen, and chicken coops, and the garden hose," he continued, "what about all them?"

"We'll have to see Mrs. Adams about that part," replied Jones. "In the meantime suppose they intend to keep all that live stock, which they may or may not, then the water required outside of the mansion should be about: 6 horses, 60 gallons; 20 cows, 240 gallons; 12 hogs, 50 gallons; chickens, estimated, 50 gallons; or a total of 400 gallons, say 500 gallons per day, not including the garden hose and such like. In other words, we still have well over a thousand gallons per day for the mansion, which is ample for 20 to 25 people."

"They'll never have 25 people here overnight," suggested the caretaker. "The place has never seen more than 10 people at one time since the old colonel died."

"We'll have to leave that question up to Mrs. Adams, too," said Jones. "And now, while we are near the creek, let us see where the old sewer is."

The caretaker led the way down to the meadow, then along a path at the edge of the creek. They followed the stream down and around the bend before their attention was drawn to a filthy little pool at the edge of the creek where flies and odor of sewage filled the air.

"That's it," said the caretaker, pointing to the slimy mouth of a 6-inch sewer. "I guess it all comes down there, and sometimes this is a mighty dirty hole."

"Any cows or any horses take water from this stream lower down?" inquired Jones.

"Yep," replied the caretaker, "old Ben Cooper pastures on both sides of the creek about 500 yards down from where we stand, and I guess he draws water for his house also from the creek at times when his spring runs dry. He's the nearest party to us. There are others lower down, who do the same thing."

Jones certainly was getting his information. "Any other sewer runs into the creek from your property?" he inquired.

"Nop—none what somever," replied the caretaker, as he pushed the small blade of his knife into the now very short cigar stump, and proceeded to enjoy the last of a good smoke. "I don't know where the rest of the sewage goes."

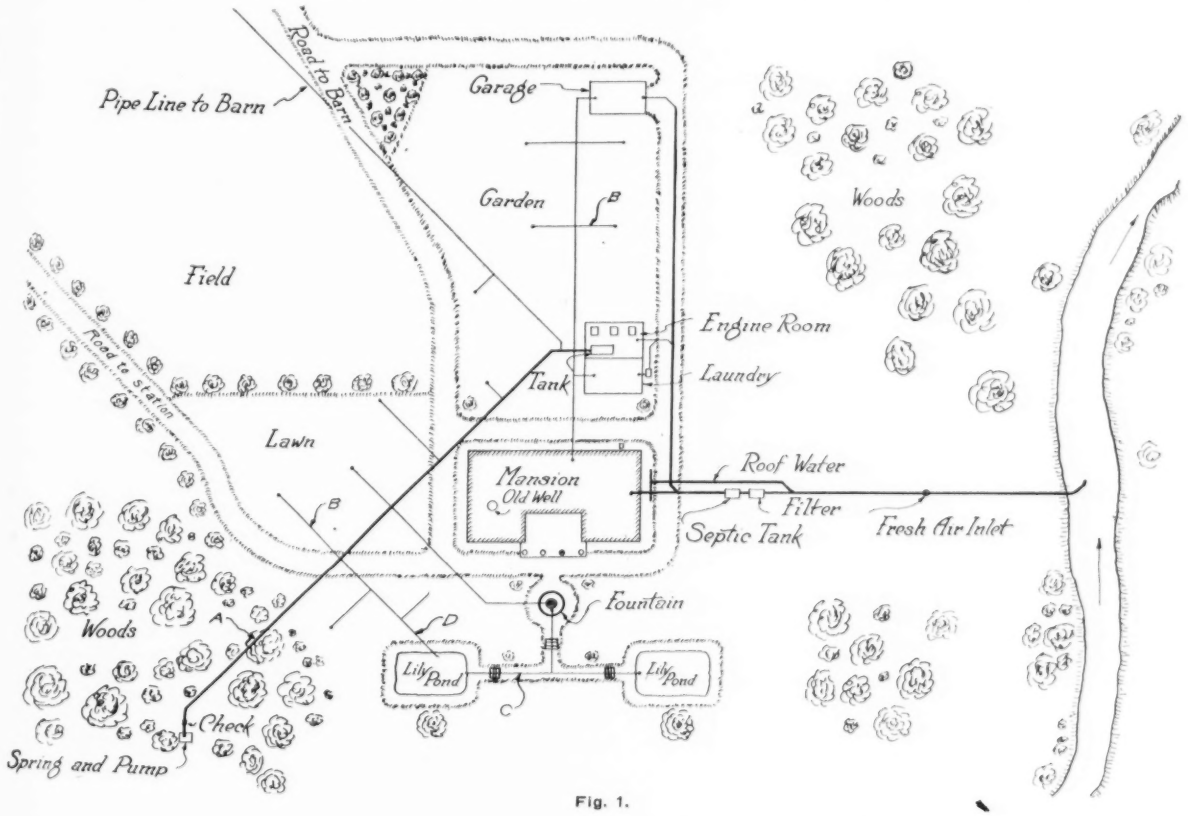



Fig. 1.

"Come up to the mansion now," said Jones, leading the way up the 25-foot elevation, "and let me see where the present pump in the building takes its water from."

"The old well is the only place I know of," said the caretaker, "but you'll see for yourself when we get there."

Jones saw an old hand pump in the basement, when they were making the smoke test, so he led the way there. Arriving at the pump, he examined it closely. Bill followed the suction pipe. The caretaker stood on a flag stone, but said not a word.

"I guess this is the well," said Bill pointing to the flag stone.

"Right you are, sonny," responded the caretaker—"you're some wizard."

"Lift the flag, Bill, and let's see it," ordered Jones. "And perhaps the caretaker will oblige us with a lantern and a rope—an old clothes line will do."

Lowering the lantern they found the water line about 15 feet below the level of the basement floor, and the bottom of the well about 6 feet below the water line.

"This seems to be the same vein of water that overflows at the spring," remarked Jones comparing levels.

"Any other wells you know of?" he inquired.

"Not at the mansion," replied the caretaker. "There is one at the barn, and that's all."

Jones, consulting his watch, said: "My, how time flies. Mrs. Adams will be here in twenty minutes. I must see Tom at once.

"Bill," he said, "you go over to the barn with our friend here and see the well there. Also examine the other outbuildings and see what there is in or around them. I'll see you later." Then he hurried to meet Tom.

True to type, Tom was on the porch with all his data carefully tabulated.

Jones and Tom talked about a hot water heating system extensively.

"You figure 3,200 feet of hot water radiation, eh?" inquired Jones.

"Yes, sir," said Tom, "by the 2-20-200 rule, plus 60 per cent and an extra 10 per cent for the coldest rooms."

"Did you allow ample radiation in the large front hall?"

"Yes, I doubled that."

"Good. I guess you are not far off. Did you check up the building as a whole with the total radiation?"

"Yes, sir. But most of the radiation is on the first floor, as I calculated heat will rise in that hall stair case."

"I guess it will, Tom," replied Jones, approvingly—"and you are wise in doubling up the first floor hall radiation. Ah, here comes Mrs. Adams."

A handsome limousine stopped at the front door, and Mrs. Adams, very plainly dressed, but as trim as a yacht, stepped to the porch. Tom got the tip to "skiddoo" for the present. But he left his data with Jones.

"Good morning, Mr. Jones," said Mrs. Adams cordially to the contractor. "I see you are here first."

"Good morning, ma'am," replied Jones, tipping his cap modestly, "I've been all over the grounds and am now at your service."

"Will you pardon me a few minutes, while I talk to the caretaker?" she asked, as she moved away. "I will be back very soon."

Jones was pleased at the arrangement, for she really had arrived before he was fully ready for her. He therefore seized the opportunity to sketch a rough layout of his plan for the outside work, particularly the water supply system. Taking the sketch pad and pencil from his valise he promptly busied himself making the layout.

We will not go into details of how he did it. But he first blocked in the house about the middle of the sheet. Then located the outbuildings as he saw them. Then located the spring, creek and septic tank. And he finally drew the several lines representing the piping.

His trip over the place with the caretaker put the ideas in his head. He just placed them on paper so that the same ideas might be more easily imparted to Mrs. Adams. Having finished the sketch he sat pouring over it in oblivion. The fact is he saw the whole job in his mind's eye, and he knew it was O. K.

"Have I kept you waiting?"

Jones started at the sound. "Ah, Mrs. Adams," he said, rising, "No, ma'am, I have been improving the time making a rough sketch which I will have drawn neatly and presented to you later. In the mean time I will show you a plan of the sanitary work in and around the mansion. I hope you will like my plan."

He spread upon the table the sketch which Si had colored so beautifully, and which was shown and described in our article last week.

Mrs. Adams examined it carefully, and Mr. Jones explained it clearly, answering many sensible questions in a concise intelligent manner. She not only approved the sketch, but complimented him, and asked to take it back home for Mr. Adams to see. "I am sure it will meet with his approval also," she said, "and I suggest that you go ahead on that plan, which I will try to return by mail tomorrow."

Jones rolled up the drawing neatly and presented it to Mrs. Adams. Then he spread the rough sketch before her, which he had but recently completed. This sketch is shown in Fig. 1 herewith.

"Now, you have to imagine yourself up in a balloon ma'am and looking down on your new estate," said Jones smiling, "and perhaps have to strain your powers of conception somewhat to understand those rather crudely drawn lines. But this sketch is really a plan view or map of the grounds around the mansion showing the general arrangement and locations of the water supply system and sewage disposal system, which, after a careful survey and some study, I think is the best arrangement to install."

"Well, I'm up in the air now and looking down on our miniature estate, as you suggest," she said, entering into the spirit of the thing, "but I am afraid you will have to explain all those spider web like lines. At present, as I observe them from our imaginary altitude, they are as legible to me as Chinese hieroglyphics."

Jones was not sure what that big word meant, and squirmed a little, but he thought she did not understand the sketch. "Shall I explain it ma'am?" he queried timidly.

"If you please," she replied. "I will tell you what I, as an inexperienced person in such matters do really observe. I see a rectangle called a mansion, with a circle inside which is called 'old well.' Then the mansion is a square, one-half of which is laundry, the other half is engine room. Further away is another square called a garage. In front of the mansion is a circle called fountain and below that are two rectangles called lily ponds.

"To the left is a small square called spring and pump, and to the right of the mansion is something called septic tank and filter. Then half way round the border are nearly parallel lines which are marked 'stream.' But as for the remainder I am totally ignorant. Please explain them."

Jones proceeded. "You are fortunate, ma'am in having an excellent living spring on the premises, which is reported never to run dry. I advise taking the supply of water to all the premises from this spring, if after analysis we find it to be perfectly safe water. I suggest that you use the room at the back of the laundry for an engine room. Install a gasoline engine and generator unit there to produce electricity. Run wires down from the engine room to the spring. Install a pump and electric motor at the spring in a suitable small house. Place a water tank underground at laundry and fill it with water through this pipe line which I mark as A. This will maintain a suitable water pressure all the time, for all plumbing fixtures, fire hose, garden hose, barns, etc., as good as the water works in any city.

"These branches at B are smaller pipes, which I suggest you run to lower sprinklers or garden hose attachments, for I am sure you will want beautiful lawns and gardens here, even during dry seasons."

"That idea is fine," interrupted Mrs. Adams. "I do love beautiful flowers and fresh lawns."

(Continued on Page 179.)

# WHAT WILL CHRISTMAS MEAN *to* HER?

## MR. PLUMBER, IT'S UP TO YOU!

WE don't know who the woman in the picture is, but she has our sympathy. In fact, any woman who has to slave one hour or eight hours over a galvanized iron tub can get our vote for anything, including suffrage. The trouble is, most women have "sufferage." What with the high cost of living, taking care of the kids, getting three squares ready every day, keeping the house clean and tidy, not to mention a hundred other jobs, Mrs. Average American doesn't know the meaning of an eight-hour day.

Talk about production! Considering the home equipment that Mrs. Average American gets along with, she's a wonder. It isn't strange that she belongs to the so-called weaker sex. She can't get very strong hustling a broom and pan or spending hours breaking her back over a tin tub.

And how about the help problem? Do you blame a foreign-born woman kicking at two-fifty and carfare when she has to sweat and do back exercises, from eight till four, and then go home and take care of her own family!

And soon Christmas will be here, and what will it mean to those who work hard throughout the year? Some of 'em will get diamond rings, fur coats, talking machines; things more ornamental than useful. Answer this question, what's the use of a talking machine to a woman who's too tired, most of the time, to wind it up? Fancy slaving all year to have the privilege of hearing the Hambone Rag at home!

Who can make a million women happier in 1920? The Plumber!

How? That's easy; by making this year's Christmas one of practical buying.

Mr. Plumber, it's up to you to give Mr. Average American a good talking to. He needs to be told now and reminded repeatedly that the missus wants something more than sparklers or glad rags. She needs modern home equipment, and this means an up-to-date bathroom, kitchen sink, laundry trays, hot water heating apparatus, washing machine, vacuum cleaner, etc., and if she's in the country, an electric light system and a water supply outfit, too.

The thing to emphasize, Mr. Plumber, in selling such equipment, is the **service** and **advantages** through ownership and use. You must succeed in selling the service idea to your prospective customers.

Will you be satisfied to sit still and watch every retailer of home goods in town get oodles of business this Christmas while you get nothing? If you will, you're missing a mighty big bet.

You know that there isn't another merchant who can offer more practical gifts than **you.** If you haven't convinced yourself of this, do so now.

If you're not handling washing machines or vacuum cleaners, don't you think it would be worth while to look into the matter right now? There's a good profit in every sale and that won't be the end of profits, either, if you're on the job.

It's practical equipment and you, as practical men, are the most logical to handle it. People hesitate to do business with shops not well established, but this cannot be said of plumbing shops. Most plumbing shops are well established. They know you and your place of business; see your shop frequently; have confidence in you. Therefore, why not cash in on such assets.

There's no end of arguments that you can use to educate people to solve many of their Christmas problems right in your shop. It has been done by others with profit and success and you can do it, too!

Christmas will be happier all around this year, if plumbers take advantage of their opportunities to urge practical buying for the home.

# MOTOR TRUCKS AID BUSINESS EFFICIENCY

## A PLUMBING SHOP ON WHEELS.

THE way to satisfy a customer is to give first-class service and to make that service as inexpensive as possible. This is accomplished by Herman G. Peterson, a master plumber of Bloomington, Ill., who specializes in repair business. Mr. Peterson advertises "A Complete Plumbing Shop on Wheels," and, through the medium of a small auto truck that is fitted up and carries a wide variety of repair parts for all kinds of plumbing work, he is always ready to answer the customer's call and, in the majority of

The Truck That Saves Time and Money for the Customer.

cases, only one visit is necessary. He advertises, also, that when the call is made all tools and materials are brought to the job, and this is a time and money-saver, which is bound to appeal to the customer.

Mr. Peterson's truck is shown in an accompanying illustration and he writes as follows: "I have been working up this kind of business for a comparatively short time, but so far it has been fully up to expectations.

"I use a Ford truck with a covered express body, which

**Complete Plumbing Shop on Wheels**

Brings all tools and materials right to the job. A time and money saver.

REPAIR WORK ONLY

**Herman G. Peterson**

**PHONE 1396-L.**

is equipped with boxes and bins for fittings and repairs of all kinds, as well as a portable vise and cutting tools, having capacity up to two inches.

"I carry an assortment of valves, bibbs, ball cocks, etc., and am able to replace any valve or cock that is beyond repair, without loss of time.

"I charge the regular prices, but in practically every instance I have been able to effect a saving in time by having everything along, as there are few people who are able to tell exactly what is needed in giving an order for repairs. I keep a supply of repairs and fittings on hand at all times and every morning and noon replace what have been used."

### Motor Trucks Build Business.

Motor trucks are regarded by many plumbing and heating contractors as indispensable for local work, but numerous instances could be quoted where work has been undertaken in wider territories because of the added confidence that, with a sure method of transportation, material and equipment and even workmen can be carried to the job. This has been found particularly true in developing farm business. Plumbing, heating, water supply and lighting apparatus can be taken out to the farm early in the morning in sufficient quantities to insure a continuous day's work, and, when the trip is made later in the day to bring home the workmen, lists of supplies needed for the following day can be made up so that a prompt start can be made.

The question of adequate motor truck service is also a vital matter to the jobber, and where provision is made to cover a large radius of operation, trucks make possible rapid business expansion.

William S. Roe, of Newark, N. J., a jobber of plumbing supplies, operates five trucks, one of 5-ton capacity, three of 3-ton and one 1½-2-ton capacity. According to Mr. Roe, this fleet of trucks has enabled him to double his business in extending his deliveries.

"We have one 3-ton truck that has been running six years and has covered at least 135,000 miles," says Mr. Roe. "This truck is still running every day over bad roads and on long trips, such as going to Cowell, which is on the top of a mountain. It has made an average of twelve to thirteen miles on a gallon of gasoline, and has made the trip from Newark to

One of Five Trucks Owned by a Newark Jobber.

New Brunswick and back, which is about fifty-four miles, with a full load both ways, on five gallons of gasoline."

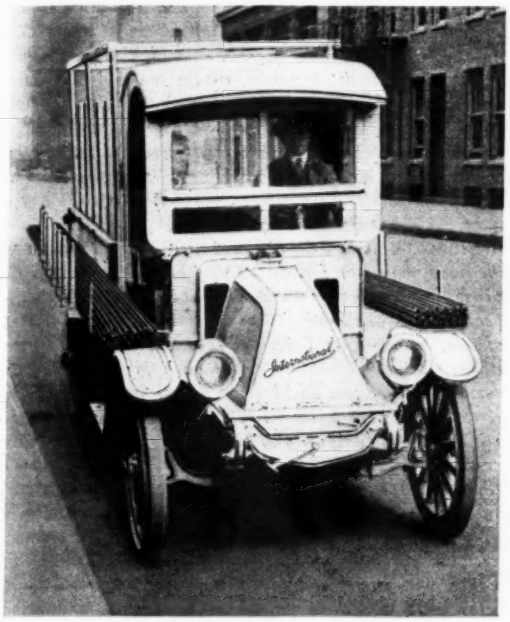
Besides the truck with the 135,000-mile record, two other trucks have been run 100,000 miles. All trucks owned by Mr. Roe have averaged from 65 to 75 miles per day. "Our trucks have enabled us to increase our business 100 per cent by making deliveries to New Brunswick, Perth Amboy, and other nearby cities," Mr. Roe declares.

### Michigan Jobber Finds Trucks an Asset.

The J. J. Howden Co., of Muskegon, Mich., is another

plumbing and heating firm which considers that owning a fleet of trucks has contributed to its growth.

"We know positively that they have aided our business interests to the extent that speedy deliveries have been effected, and this has been very much appreciated by our many customers," says President F. J. Howden. The trucks of the Howden fleet were purchased three years ago and have aver-




Pipe Racks on Side Don't Interfere with Load.

aged approximately 175 miles per week each, covering intercity as well as city routes, since they have been in service.

An illustration of the dependability and economy of trucks is the experience of the Akers & Harpham Co., of Akron, O. This company reports a ¾-ton truck having run more than 120,000 miles in five years at a total cost for repairs of about $1,000. 1½-2-ton truck, bought in 1914, has been operated more than 105,000 miles, with repairs costing about $600. A ¾-ton truck which has traveled 55,000 miles since its purchase in 1915 has had a repair bill of but $150.

Trucks, therefore, are establishing new standards of efficiency. They are supplanting teams in delivery service, are doing more work, are adaptable for a wide variety of requirements, as well as greatly increasing the possibilities for new business, and quickly pay for themselves through the increased profits brought to their owners. They are an ever-dependable link for the jobber between the warehouse and the customer, and for the contractor from his shop to the distant job, because they can be relied upon at the time wanted.

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**Secretary of War Baker** has directed that it is no longer necessary to advertise for bids in letting War Department contracts.

**The Aerial Mail Service,** October 17th, made a non-stop flight with mail from Cleveland to Jersey City, a distance of 415 miles, with an alcohol fuel. The distance was covered in three hours and twenty-six minutes, at the rate of speed of 120.6 miles an hour. The purpose of the test was to determine how much more mileage it was possible to get out of alcohol as compared with high-test gasoline.

# Trade Extension Bureau

### News of Estimating Bulletin To Be Issued Shortly.

Close on the heels of the bulletin on Overhead follows the Trade Extension Bureau's booklet on Estimating. When the questionnaire survey of the plumbing and heating industry of the country was made last July, the two sore spots in the business efficiency of the contractors were found to be the weakness in figuring costs and estimating. Both of these link so closely together that weakness in one means failure in the other, so that even the vital missionary work of the standardized accounting system was set aside and the fixed charge in estimating given preference.

The Trade Extension Bureau has gone a step farther in this bulletin on estimating than in its earliest work. The estimating bulletin is amply illustrated with cuts of actual contracts figured upon. The plans are taken off and the notations, made by an estimator, are carried out in detail. Quantity estimate sheet, estimate sheet records, plan records, contract forms, request for quotations, together with the jobbers' quotation, envelope and folder files are illustrated in the bulletin.

A short cut in estimating labor is offered on page 12 of the bulletin. From statistics gathered by means of voluntary information, given by a number of contractors, regarding the amount of labor a workman can do, an estimating formula has been arranged. Labor on roughing in, soil pipe, Durham vent work, water piping and gas fitting, setting forms, lead work, hot and cold water pipe fitting, cold water fittings and gas fittings, solder, caulking lead, pipe covering and setting of fixtures on various weights are all estimated on the formula sheet. Actual tests were taken to ascertain the number of cubic yards of dirt which can be excavated at certain depths, and these are included in the formula.

Printed estimate sheets, such as those used in illustrating the booklet, will be supplied to the plumbing and heating contractors at even less than quantity cost price. Thus the small contractor who wishes to purchase only 100 estimate sheets, or 100 plumbing and heating contracts, can do so and at approximately the same price, which he would have to pay were he to order them in 50,000 or 100,000 lots. For example 100 printed estimate cost sheets are quoted at 50 cents. Envelope estimate files at 35 cents per 100. The price quoted by the Trade Extension Bureau, however, are based on the present stock on hand and subject to change when new lots are printed. All prices include postage.

This is one of the phases of real service which the Trade Extension Bureau offers the plumbing and heating contractor of the United States. It links with a reduction in overhead and, by giving the contractor the benefit of the economy of co-operative and quantity purchases, produces real authentic estimate sheets.

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### National Association of Master Plumbers Makes Drive for New Members.

President Frank B. Lasette, of the Association of Master Plumbers has sent from the headquarters of the association, 2255 Broadway, New York City, a reply postal card on which the recipient is told that he has been appointed a delegate of one to secure one new member. The member is asked to sign and return the card which is headed "There is strength in numbers," and has a postscript, "For National Association topics, read the trade papers."

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San Marco, Tex.—W. E. Turner has opened a plumbing establishment on South Austin Street in this city.

## FORM OF AGREEMENT BETWEEN OWNER OR ARCHITECT, AND CONTRACTOR APPROVED AND ADOPTED BY CENTRAL SUPPLY ASSOCIATION.

The draft of an agreement between the owner, or architect, and contractor, approved and adopted by members of the Central Supply Association, is presented herewith. This was submitted to the members of the organization early in September and concurred in at the twenty-fifth annual convention, held in Chicago last week.

THIS AGREEMENT, made and concluded this ..... day of ..... 19..... by and between ..... of ..... Illinois, Contractor, party of the first part, and ..... Owner, party of the second part.

*Witnesseth:* Article I. That the Contractor hereby agrees, for the consideration hereinafter mentioned, to furnish all material and perform all the work necessary to construct, complete and deliver to the Owner the.....

.....

.....

.....

to be installed in.....located at.....in the County of....., State of....., in conformity with the drawings and specifications prepared by ....., which drawings consisting of..... ..... and the specifications signed by parties hereto are hereby made a part of this agreement.

Article II. The work included in this contract is to be done under the direction of said.....and .....decision, as to the true construction and meaning of the drawings and specifications shall be final, except as provided in Article IX (not binding where there are no specifications or architect).

Article III. No alteration shall be made in the work except upon written order of Architect or Owner....., the amount to be paid by the Owner.....or allowed by Contractor, by virtue of such alteration, to be stated in said order. Should Owner.....and Contractor or Architect not agree as to the amount to be paid or allowed, the work shall go on under order required above, and in case of failure to agree, the determination of said amount shall be referred to arbitration as provided for in Article IX of this contract.

Article IV. The Contractor shall begin work as soon as the premises are ready for the uninterrupted installation of the "roughing in," and work shall be done at such times and in such a manner as not to interfere unnecessarily with the work of other contractors, and shall be completed on or before.....days from time of commencement of work.

Article V. The Contractor shall not be held liable for any loss, damages or delay occasioned by strikes, lockouts or other causes beyond.....control.

Article VI. The sum to be paid by the Owner..... to the Contractor for said work shall be.....subject to additions and deductions as hereinbefore provided, upon certificate of Architect as follows:

.....

.....

85 per cent of all material delivered and labor performed each month shall be due and payable on the 5th day of the following month. Estimates thereof shall be filed on the 1st day of each month for the preceding month. The final payment of the 15 per cent shall be due and payable within thirty days after completion of the contract. Interest at 6 per cent shall be charged on all deferred payments.

Article VII. No payment, except the final certificate or payment, shall be conclusive evidence of the performance of this contract, either wholly or in part, nor shall invalidate the guarantee hereinafter contained.

Article VIII. The Owner..... shall, during the progress of the work, maintain insurance against loss or damage by fire or tornado, the policies to cover all work incorporated in the building and all materials in or about the premises, and to be made payable to the parties hereto, as their interest may appear.

Article IX. In case the Owner..... and the Contractor fail to agree in relation to matter of payment, allowance, or loss referred to in this contract, or shall either of them dissent from the decision of the Architect, which dissent must be filed in writing with Architect, within ten days of such decision, then the matter shall be referred to a Board of Arbitration, to consist of one person selected by Owner....., and one person selected by Contractor, these two to select a third. **The decision** of any two of this Board to be final and binding on both parties hereto, each party hereto shall pay one-half of the expense of such reference.

Article X. It is further agreed that the Contractor shall make good, repair or replace, as may be necessary, at his own expense, any defective work, material or fixtures that may appear within one year from the date of final completion, provided, however, said defects are due to imperfections in material or workmanship, or both, and proper allowance to be made for the wear and tear of use or improper treatment.

Article XI. It is also further mutually agreed by the parties hereto that if at any time prior to the final completion of the heating system and its acceptance by the Owner....., .....desire..... to make use of said system for temporary heat, or permit other contracts to do so, permission is hereby granted by this Contractor, and the Owner..... agree.....to be responsible for the use and care of the entire heating system, and to deliver same again to this Contractor in as good condition as when received. If it is necessary to set radiators for temporary heat, the Owner..... agree.....to be responsible for the use and care of the entire heating system, and to deliver same again to this Contractor in as good condition as when received. If it is necessary to set radiators for temporary heat, the Owner..... agree..... to pay the Contractor the sum of $..... per radiator for each radiator placed in the building for such temporary heat.

Article XII. It is further agreed that any guarantees either in this contract or specifications to be performed or carried out by the Contractor except those in Article X, shall be construed to refer to conditions when the building is occupied and used in the manner for which it is constructed.

Article XIII. It is further agreed that in case there is an advance or decline in the price of labor by reason of labor conditions covering the territory in which the building is located and which are beyond the control of the Contractor, then the amount to be paid under this contract shall be increased or decreased accordingly.

**Article XIV.** In case of insolvency of either party to this contract, the other party may elect to terminate this contract upon giving five days' notice and the amount to be paid therein shall be the proper amount as to material delivered and work performed bears to the whole material and work performed and if the parties or their representatives are unable to agree, said amount shall be ascertained by arbitration as provided in Article IX.

In Witness Whereof, the parties to these presents have set their hands and seals, the day and year first above mentioned.

.....(Seal)

.....(Seal)

.....(Seal)

In presence of

# QUESTIONS & ANSWERS

## REMEDY FOR FRESH WATER SUPPLY SYSTEM THAT DOES NOT WORK.

Editor "Domestic Engineering":—Fig. 1 is a sketch of a deep well outfit, which does not live up to specifications. The owner bought the outfit from a manufacturer and I connected it up according to instructions. I have never met the agent and don't know much about the outfit, but it doesn't look good to me. The pump is a brass cylinder, which is placed down in the casing below the water level and is run by a pressure. I think the thing will work in a shallow well all right. As you will notice, the cylinder is about 65 ft. below water level.

1.—The agent claims that we do not have to figure the weight of the water in the discharge pipe below the water level. Is he right?

2.—How much air pressure will it take to raise the water from well and deliver it at a pressure of 50 lb.?

We are carrying from 70 to 90 lb. of air in a tank that is 42 inches by 10 ft. The air compressor is a single cylinder 4x6 inches and is driven by a one horse-power motor. Pulleys are three inches on motor and two ft. on compressor. Compressor will not start under the load of 70 lb., even when belt is drawn as tight as possible.

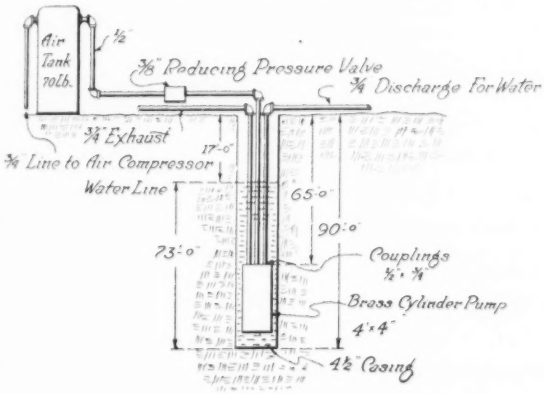


Fig. 1.

3.—Is it cheaper to pump air than water? The owner has spent about $200 experimenting with the outfit and all the agent will say is that something is wrong, but will not say what.

Michigan. S. P. R.

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Answering correspondent's questions separately, we wish to say:

1.—The agent is wrong. You do have to figure on the depth of the cylinder below the water level in well, because the air has to be pushed all the way down to the cylinder and has to push against the vertical hydraulic head from cylinder to surface plus the pressure to be held up in pipes at surface.

2. It will require 82 pounds of air pressure in the tank to give 50 pounds water pressure at ground level of well. It requires 32 pounds to counterbalance the head of water between cylinder and ground level. On top of that add 50 pounds to be maintained in the piping. That gives 82 pounds.

But remember that 82 pounds does not produce a flow. It just holds up the water pressure to 50. If you want 50 pounds in the main at top of well, when a faucet is open in the house, you will have to add some more pressure—perhaps 20 pounds, more or less, according to existing conditions. If 20 pounds are necessary to produce the flow, and we do not think it is too small, then the air tank pressure should be 82+20=102 pounds per square inch.

3.—We cannot say definitely whether it is cheaper to pump air or water. It depends very much upon the existing conditions, the kind and quality of the mechanism, the labor and attention required, cost of plant, repairs and maintenance, etc. But we do know that first class fresh water equipments are to be had which do operate satisfactorily and are said to be very economical.

It seems to us that the manufacturer has sold your customer an apparatus that is too small for the work. A more powerful motor, to give a higher air pressure—say, 140 to 150 in the tank—and reduced to 110 for the cylinder, may give an excellent flow at the faucets, providing the pump part is all right.

The firm you mention who made the pump is reported to be a reliable concern. But we fear the agent has made the mistake of selling a motor that is too small.

The next time you see that agent tell him to subscribe for "Domestic Engineering" and learn more about hydraulics and their relation to fresh water supply systems.

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## MOVING RADIATORS AND CHANGING THEIR CONNECTIONS.

Editor "Domestic Engineering":—In a large building there is a large steam main going through one basement, with several branches to supply radiators to the store and risers to the floor above the store.

There is no return in this basement. The steam is supplied by a private concern and enters the building through this basement. I do not know where this return leads to. This store is in need of room and so we wish to move two radiators together into the center of the room. One is 82 ft. steam and the other 66 ft. steam. Each is supplied by a separate 1½-inch branch from the main. The radiators are often so full of water that water runs out of the air vent. We would like to know if one 1½-inch branch is large enough to supply both radiators. We also wish to know if it is possible to install a return line from each radiator to the branch to drain the water.

Cleveland, O. M. F. O.

In the absence of a drawing or sketch showing the present location of the radiators and piping, together with the positions they will occupy after the desired change has been made, it is rather difficult to advise as to the best available method of making the new pipe connections.

We assume, from correspondent's statement that there is no return in the basement of the store, that the radiators are at present connected one-pipe. This being a fact we advise that a 1½-inch branch is not large enough to supply the two radiators (66 and 82 sq. ft.) and allow for the return of the condensation.

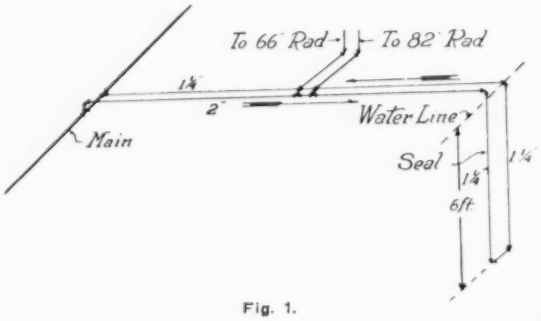


Fig. 1.

We see no other method but to cut into the main and remove one of the present tees, replacing it with one having a 2-inch side outlet and then make the branch connection 2-inch. It would seem that it is just as important to overcome the difficulty of the radiators flooding with water as it is to increase the steam supply. We suggest that a 2-inch branch be run from the main to the side of the basement, pitching down, and there bleed through a loop seal. Fig. 1 illustrates the method. The water line of the seal should be a few inches below the end of the branch and the seal itself should be at least 6 ft. deep. The return connection from the seal should be connected into the side of the main at a point beyond the 2-inch branch connection.

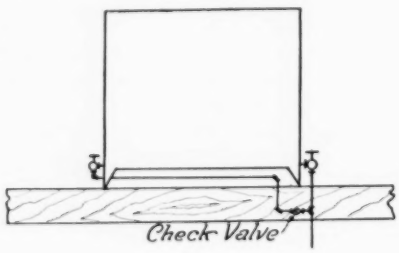


Fig. 2.

A separate connection to each radiator should be made from this branch as shown. These should be connected 45 degrees and have a good upward pitch from branch to the vertical radiator connections. For the 66 ft. radiator the pipe should be 1½-inch reducing to 1¼-inch for the valve connection. For the 82 ft. radiator the entire connection should be 1½-inch. The 2-inch branch should pitch downward to the seal. The method outlined can be adapted by correspondent with any changes necessary to cover his particular case, and we think that it will effectually overcome the flooded condition at the radiators.

Fig. 2 shows a method of trapping the condensation into the vertical supply. The return from the radiator is reduced to ½-inch before connecting with the riser and a light weight check valve is used in this connection. There are occasions when this method can be used with good success.

## TWO PRACTICAL QUESTIONS.

Editor "Domestic Engineering":—Kindly let me know a good method to get rid of the condensation in an air line with some form of trap or other approved apparatus. There is about 90 lb. pressure on the air line.

Will you also give me a simple method of figuring a forty-five degree angle?

Detroit. G. T. A.

We are of the opinion that a separator, placed on the air line at the point the trouble due to water is most prevalent, will relieve it of the accumulated condensation. The drip from the separator should be connected to a high pressure trap.

There are several simple rules for making correct 45-degree measurements. A rule easily remembered is as follows: "Multiply the length of the actual offset in inches by 17 and divide the product by 12. "Take out" for the fittings and the result is the correct length (in inches) required.

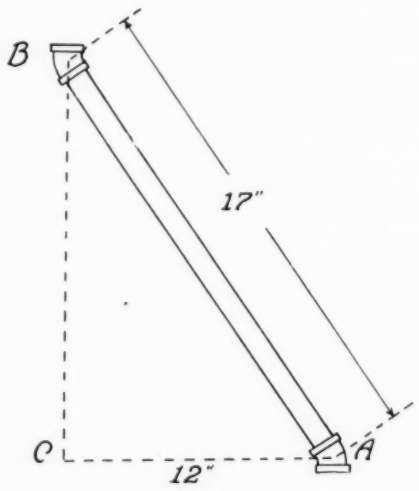


Fig. 1.

Fig. 1 illustrates the method. The actual center to center measurements shown (A to B) is 17 inches and the offset (A to C) is 12 inches.

Another illustration is to multiply the distance between centers, as that between the points A—C on Fig. 1, by 1.414 and the result will be the correct distance between the points A—B. Take out for fittings as before. Applying this rule to the measurements given on Fig. 1, 12x 1.414=(equals) 16.968, or practically 17 inches.

## CONVENTION DATES.

February 2 and 3, 1920.—The twenty-fourth annual convention of the Minnesota Master Plumbers' Association, in Minneapolis, Minn.

February 16, 17 and 18, 1920.—The twenty-ninth annual convention of the Ohio State Association of Master Plumbers, at Cleveland, O.; with headquarters at the Hotel Winton.

## OVERHAULING THE PLUMBING IN AN OLD COLONIAL MANSION.

(Continued from Page 172.)

"Then you require ample accommodations for sprinkling," replied Jones.

"Another thing I suggest since we are talking about the outside beauty is that a few electric lights be erected along the drives and cozy spots, and perhaps even arrangements for an electric fountain. They are simple and inexpensive and go a long way in creating charming attractions."

"Oh, that makes me think of the house itself," said Mrs. Adams, "how can we have electric lights in the house? I so detest the old oil lamps they have in there now."

"That is a very simple matter, madam," replied Jones, as a vision of Si came in his mind. "We are at present in an excellent position to wire the house and install electric fixtures. Our electricians are very proficient."

"I'm so glad you do that work, too," said Mrs. Adams. "It means so much to us to have but one contractor to do the work. I can hold him responsible for everything. We will have another interview later about electric lighting. In the meantime consider that you will do the electric work also. Please arrange accordingly. Now proceed with your description of the plumbing."

"As I was about to say," continued Jones, referring to Fig. 1 again, "the dots you see at the end of each branch line, B, is a sprinkler, or attachment for a garden hose. They are distributed over the lawns and other parts where they appear to be most needed."

"You had better consult the gardener about their locations," interrupted Mrs. Adams.

"The present fountain," continued Jones, "will be piped up with water from the main, A. Its overflow will run into the lily ponds through the lines shown at C. From there it will overflow down the bank. A separate pipe, D, will be used to fill the lily ponds by hand when desired, as I expect the fountain may be run only on occasions, for all the water must be pumped.

"At the engine room the same engine that runs the pumps will light the house and grounds and keep a refrigerator cool, if you want it."

"Excellent thought," exclaimed Mrs. Adams. "We certainly want an iceless refrigerator. We have one in the city which is cooled by electricity and it is perfection. We must have the same here. It is so much better than mussing with cakes of ice."

"I can procure one and install it for you as the job proceeds," suggested Jones.

"Good—I will mail you the name and you will see to it," said Mrs. Adams, jotting down a memorandum.

"And shall I order it at once?" queried Jones, "shipments are slow these days and orders should be sent as early as possible."

"Do," replied the lady, "at once. My, but we are digressing from the plumbing. Proceed."

"I think the water works system has been explained in a general way. I will now describe the sewerage system," said Jones, proceeding to make a sketch.

"No," interrupted Mrs. Adams—looking at her watch, "we have not time now. I have to meet the decorators in a few minutes. We must leave the sewerage part to our next interview."

"Shall I order the material at once, according to the plans I have submitted?" asked Jones. "We should start without delay as time is short."

"No, you may order the materials for plumbing the inside of the house, but leave the outside work wait until you hear from us. I wish to take it up with Mr. Adams. Good bye."

Jones did not manage to close up everything on his first trip. But he was perfectly contented. He had closed up the house work and could go ahead with that. He also had a good line on the electric work. In fact, it was promised, but not yet closed in detail.

As for the heating—well, there was no chance to take that subject up at that interview.

On the way back to the shop he explained to Bill how he was to be foreman on the job, and to Tom how the heating would be up to him, if the thing went through.

"And," he said to the men, "I'm going to furnish a swell heating plan as well as a complete map of the outside work, all colored nicely. These I'll submit at our next interview. Why shouldn't we spread ourselves. Nobody can do better work than we, and nobody has a better right to make a good impression.

"Right you are, sir," replied both men as they drew up at the shop.

(To be Continued.)

### Window Display Gets Farmer's Business.

Business can be built by attractive window displays, and this has been the experience of the George B. Allbee Co., of Bellows Falls, Vermont, whose attractive establishment is shown in the accompanying illustration. A special appeal is made to the farmer by showing the water system and bathroom equipment, and a sign on the tank explains that it is suitable for the country home and operates under a pressure ranging from 20 to 50 lb. The

Window Display of George B. Allbee Co., Bellows Falls, Vt.

installation shown is of moderate cost and within the reach of most any farmer. The sign at the left of the window display reads: "The home of George B. Allbee & Co., Dealers in one-pipe furnaces, water systems for the farmer, Glenwood ranges, etc." The shop is well lighted at night, and the attention of farmers who visit the town after work is thereby attracted, and profitable business is the result.

### The Bark Test.

Two sailors at a good show were gazing at a valuable Skye terrier, which had so much hair that it looked more like a woolen mat than a dog.

"Which end is 'is 'ead, Tom?" asked one.

"Blowed if I know," was the reply; "but 'ere, I'll stick a pin in him, and you look which end barks!"—Blighty (London).

## OVERCOMING PRESENT DAY CONDITIONS BY TREATING WORKERS AS INDIVIDUALS.

When is industrial America going to wake up? How long are we going to fool ourselves in believing that conditions as they now exist industrially must continue?

Let us do a little thinking for ourselves. We have become so used to taking our opinions from the so-called popular sources of information, without any regard for the real truth, that we find ourselves admitting the existence of certain conditions that in reality do not exist at all.

I have just finished glancing over two different morning papers, three weekly magazines of national circulation, six monthly periodicals of equal distribution, and a number of other mediums of social, political and industrial influence, and every one of them contained columns of matter more or less bewailing the present unrest in labor circles. All of which leads us to ask: "Is it all necessary?"

As Americans we take considerable pride in believing that we really think—that we are capable of analyzing a situation correctly and reaching an accurate conclusion. But in this matter of industrial unrest are we thinking clearly and acting logically?

There are forty million wage workers in the industries of this country. There are at least two million employers (we haven't the exact figures); yet out of these forty million less than four per cent attempt to control the destinies of the other ninety-six per cent; while the business of the two million employers is being harassed continually by an equally small per cent of oppressive employers, says W. A. Grieves, assistant secretary and superintendent of welfare, Jeffrey Mfg. Co., Columbus, in "100%."

Ninety-five per cent of the workers of this country are honest. The same can be said of an equal percentage of employers. These two indispensable factors in the main are anxious to work in harmony. They realize that their interests must always be that of mutuality. On one side is the sensible conviction that an equitable and fair wage must be paid, that good working conditions must prevail, and that the right of the square deal must never be denied; while on the other side there must be an equitable and fair return in service rendered.

If, then, this is a reasonably accurate statement of the facts, why should ninety-six per cent of honest employers and the same per cent of honest employees be subjected to the outrageous conditions brought into being by the acts of self-seeking minorities?

Can it ever be to the interest of the selfish and scheming employer to get together with his fellows for the common good? Is it possible for the selfish leader on the other side to give up his trouble-making and go to work? Just as the one schemes to get the greatest amount of work for the least miserable pay, the other seeks to obtain the maximum pay for a minimum effort. So long as we allow these elements to control, just so long can we expect to have industrial unrest.

Complete organization on both sides is never going to be a solution. The oppressive employer says: "Let's organize and fight"; and the selfish employe says, "Let's organize still further and fight." So we have the battle on continually. And who's paying the bill? The ninety-six per cent who are honest and willing to live and practice the rule golden.

To say that collective dealing is a solution, is not getting to the bottom. No great industrial institution ever gets so big that it can afford to ignore the individual. And in any scheme of large group representation there is apt to be misunderstanding and unrest. The concern today that is treating its employees as individuals isn't having much trouble. It's when this element of personal touch has been eliminated that trouble begins.

The mistaken idea that a workshop becomes so large that it is impossible to deal with the individual, is doing tremendous damage today. Does a firm ever get so large that it cannot deal individually with its customers? If it's possible to deal and make individual adjustments with customers, why should it not be less difficult to deal with the employe individually?

Collective dealing for the individual workers is just as unsound as any attempt to adjust differences for customers in the mass. Just as the circumstances surrounding the purchases of the customer must be different, so are the capabilities, class of work, personalities, etc., of the individual worker incapable of satisfactory mass adjustment.

This explains one of the reasons for the ninety-six and the four per cent. Even the four per cent is constantly finding it difficult to agree within itself, evidence of which has been recently seen in the violation of sacred agreements to the contrary.

We can arrange trade agreements to the limit, establish collective dealing to our heart's content, and introduce every variety of so-called democratic representation; but if we fail to deal with the individual as the individual, our labors will meet with disappointment and regret.

## THRIFT MUST REPLACE EXTRAVAGANCE.

Bad luck in business lies not so much in the stars as in the business man himself according to business statisticians. Eighty-six per cent of the business failures in the United States in 1918 were classed as due to the individual while only 14 per cent were assigned to outside causes. Among the factors of the eighty-six per cent of failures compilers of figures numbered extravagrance, lack of capital, and speculation outside of regular business.

The Savings Division of the Treasury has pointed out that thrift, savings and safe investment are the antidotes for the toxic virus in the veins of business. Tens of millions of dollars were lost last year through waste of labor and material. Over $500,000,000 annually is being lost in the United States through speculation in fraudulent stocks. Lack of capital is holding up thousands of enterprises which would go far toward meeting lack of employment and scarcity of production.

Thrift and rigid economy, both business and personal, must replace extravagance if the crisis engendered by the high cost of necessities is to be met. New capital can be produced most easily and most certainly through saving. Safe investment will add to instead of detract from the business assets of the nation.

"Lack of character is one of the chief contributing causes to commercial failure" acording to J. Harry Tregoe, secretary-treasurer of the National Association of Credit Men. Thrift saving and safe investment not only are proofs of character but developers of character.

R. G. Dunn & Co., reports 4,586 failures involving, $88,941,608 from January 1 to September 30 of this year. It is with the reduction of these figures, the increase of production and prosperity in mind that the Savings Division of the Treasury Department is prosecuting its campaign for regular and consistent saving, the elimination of waste and investment in Liberty Bonds, War Savings Stamps and Treasury Savings Certificates.

——BUY W. S. S.——

Business is built by *going arter it*.

## OIL PAINTINGS DEPICTING HOME COMFORTS FEATURE SHOWROOM DISPLAY OF INDIANA PLUMBING AND HEATING CONTRACTOR.

A UNIQUE showroom display that will rank with the best in the country has recently been completed by Martin F. Noll of Fort Wayne, Indiana. In addition to displaying modern plumbing fixtures and water supply equipment, a number of artistic oil paintings representing the comforts of home adorn the walls of the showroom, and are shown in the accompanying illustrations. Mr. Noll has also made a progressive step in providing a comfort station on the side of the office, with facilities for men and women. Mr. Noll is one of the best known master plumbers in the state of Indiana and has been very active in association work.

The large oil painting shown in Fig. 1 has much to command attention. Here will be seen old age and youth, enjoying the comforts of home such as are provided with a modern heating system; summer temperatures inside the building while snow can be seen through the windows. It

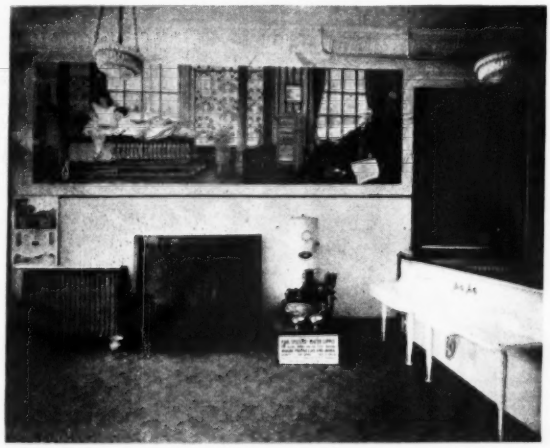

Fig. 1.

will be noted the artist has painted a type of hot water heating boiler that is installed in the sitting room, a heater designed to take the place of stoves in old homes. Such equipment, Mr. Noll points out, has many selling points in that it saves the expense of excavating, cementing of cellars, changing of plumbing and partitions, etc. In this picture, the hot water boiler and the radiator are painted to correspond with the carpet or wall paper in the room. The old gentleman shown sitting in the chair is Mr. Noll's father, who died three years ago, and the little panel over the bookcase is his mother, also deceased. The boy and girl illustrate how cozy and warm they are because of having modern heating equipment in their home.

Three paintings are shown in the back of the showroom, in Fig. 2. That at the extreme left is drawn to represent a modern kitchen. Prominently displayed is a one-piece white enameled kitchen sink, an up-to-date gas range, vegetable trough and fireless cooker. In the center a sanitary drinking fountain is shown and this is designed to attract the owner of a department store, bank, hotel, etc., so that the thought will be driven home that one or more should be installed in the lobby or elsewhere. A modern bathroom in which splendid porcelain fixtures are depicted, is painted at the extreme right of this group. This will interest a wealthier class of customers in that the maid is shown bathing the little boy in the tub while his mother is taking a shower. A general idea of the showroom and how the paintings are arranged as a whole, can also be gathered by a careful study of Fig. 2.

Fine bathrooms are also shown in Fig. 3. On the left will be seen one that has modern fixtures and many acces-

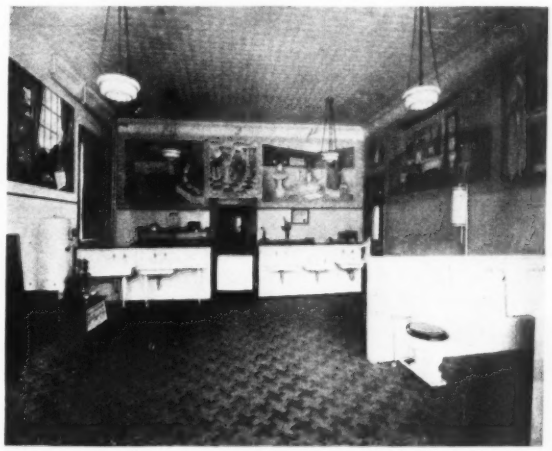

Fig. 2.

sories, such as a hanging basket for the towels, a shower over the tub and a toilet independent of the bathroom. In the center is a pedestal lavatory suitable for use in a bedroom, also independent of the bathroom. The last painting, on the right, represents a modern arrangement where the toilet is provided apart from the general facilities.

Mr. Noll says that these paintings must be seen to be appreciated, as the color schemes are harmonious and attractive, besides giving prospective customers something novel and interesting.

On the floor of the showroom are three complete bath-

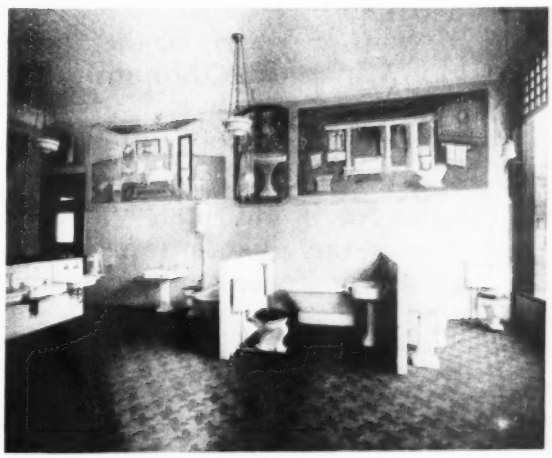

Fig. 3.

room outfits, a water supply apparatus and a variety of enameled ware products on the walls. Inlaid linoleum covers the floor, and the walls are finished with white enameled cut-in tile and the woodwork is mahogany finished.

The display room is 25x32 ft. and has a 14-ft. ceiling, the shop being located on a corner, 75x25 feet, and occupying the entire building.

The pictures were painted in oil by Ralph Dille, a well known artist of Fort Wayne.

# "Millions Know M
# these Mediu

To **know** a Hoffman Valve is to be its friend for life. Millions of readers of the above leading magazines know Hoffman Valves through the regular appearance of Mr. "Hoffman-ad" in the advertising pages of these publications.

Their readers are being told how the No. 1 Hoffman Valve on a radiator guards the coal pile and increases the efficiency of steam heating systems; that by having heating systems Hoffman-equipped, the price of the valves is soon saved on the coal bill and they have a steady dividend payer thereafter.

As a result o
are being called
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**HOFFMAN VALVES**
*more heat from less coal*

will be able
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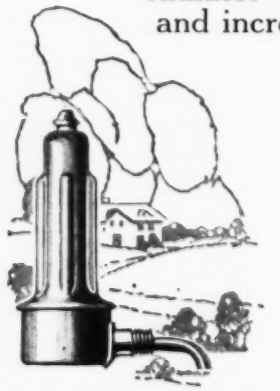

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...sult of this publicity, steamfitters everywhere ...alled upon to Hoffman-ize heating systems. ...sequent demand for Hoffman Valves has taxed our facilities to the limit, but we shall soon be in position to ship all orders promptly. Meantime, if your jobber cannot supply you immediately with all the Hoffman Valves you require, he ...e able to do so in a short while. Bet... ...t your order in right away so you will ...rly service and be prepared to supply ...patrons

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...venting service. *They are* ...anteed for Five Years.

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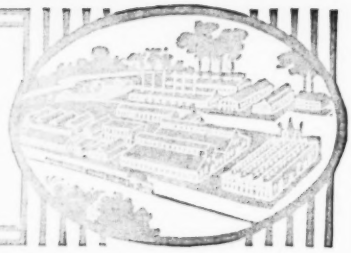
No. 8 Hoffman Return Line Valve

Mr. Hoffman-ad

# Among the Wholesalers and Manufacturers



## FINANCE COMMITTEE OF TRADE EXTENSION BUREAU MEETS IN EVANSVILLE.

A meeting of the Finance Committee of the Trade Extension Bureau was held in Evansville, Ind., October 16th and 17th, following the twenty-fifth annual convention of the Central Supply Association. It was called for the purpose of discussing the financing of the work planned. The financial situation was found to be encouraging and it was decided to carry out the proposed educational program of the Bureau.

The general discussion brought out many points of interest to all concerned and the visit to Evansville enabled many of those present to get a first hand knowledge of what the Bureau is doing and its plans for the future. The attendance was as follows: Frank B. Lasette, president, and D. F. Durkin, Jr., secretary, National Association of Master Plumbers; Joseph F. Evans, president, Eastern Supply Association; C. V. Kellogg, vice-president, Central Supply Association; C. B. Nash and J. F. Conran, Standard Sanitary Mfg. Co.; T. E. O'Brien, president, Leader Iron Works; L. C. Huesmann, president, Central Supply Co., Indianapolis; J. F. Sullivan, Thomas Maddock's Sons Co.; William J. Woolley, secretary-manager, Trade Extension Bureau; E. D. Hornbrook, Kansas City; B. O. Tilden, American Sanitary Works, Trenton, N. J.; Wallace Osborne, "The Plumbers Trade Journal," and Frank P. Keeney, "Domestic Engineering."

## OPENS NEW BRANCH IN PITTSBURGH.

The Sloan Valve Co., Chicago, announces that it has opened a new branch office in Pittsburgh, Pa., owing to a steady, increasing demand for its products. It is located at 589 Union Arcade Building, in charge of F. R. Moody.

## CONSTRUCTING FOUR NEW BUILDINGS.

The Utica Heater Co., of Utica, N. Y., is building four new structures at its factory, including an office building, a warehouse, a fireproof pattern storage house and a new core room. The company expects in this way to increase its output 33⅓ per cent.

## THOMAS MADDOCK'S SONS CO. ENLARGES ITS PLANT.

The Thomas Maddock's Sons Co., of Trenton, N. J., has five new kilns under construction, increasing the capacity of its plant 33⅓ per cent. The company has in contemplation five additional kilns, which would provide an added capacity of 50 per cent.

## HAS MOVED INTO NEW FACTORY.

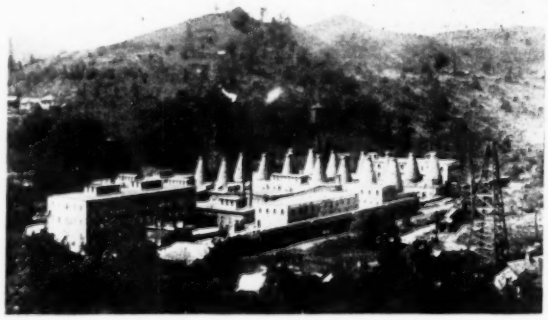
The Hotstream Heater Co., Cleveland, Ohio, has moved into its new factory and office at 1289 Marquette Road. This structure gives the company more than double the capacity of the old plant on East Seventeenth Street, and many features have been added to increase production and facilitate shipping. The company plans to extend its line of both cast iron and copper coil heaters. H. C. Berne has become affiliated with the company and will be active in the production end.

## BUILDING NEW PLANT IN CLEVELAND.

The Republic Brass Co., of Payne Avenue, and Forty-ninth Street, Cleveland, O., has broken ground for a new building on East Forty-fifth Street. This plant will have a floor space of 50,000 square feet, which will double the company's capacity. The company expects to occupy its new factory by January 1, 1920.

## SANBORN & LINDEBLAD TAKE ON POTTERY LINE.

Sanborn & Lindeblad, 642 McCormick Building, Chicago, have just taken on the line of the Bowers Pottery Co., of Mannington, W. Va., and will represent this company in the Middle West. This company's line was formerly handled by A. S. Frampton, now manager of the Chicago branch office of the Wheeling Steel & Iron Co., Wheeling, W. Va.



Plant of Bowers Pottery Co., Mannington, W. Va.

## LIST OF ATTENDANCE AT SILVER ANNIVERSARY MEETING OF CENTRAL SUPPLY ASSOCIATION.

The announcement in the last issue of "Domestic Engineering," giving a list of the new officers of the Central Supply Association, which held its twenty-fifth annual convention at the Hotel Sherman, Chicago, on Wednesday, October 15th, is herewith amended with a list of the attendance. Other business transacted at the meeting was the election of two new members, the Enterprise Plumbing Supply Co. and the Amalgamated Machinery Corporation, both of Chicago. The

convention also approved and adopted the draft of an agreement between owner or architect, and contractor, details of which are presented elsewhere in this issue. The appointment as representatives of the National Bureau of Standardization of Plumbing Materials of Messrs. Kellogg, Merkel and Gorton, by the President, was heartily approved, and an appropriation of $250 was voted towards organization expenses. William J. Woolley, secretary-manager of the Trade Extension Bureau, and Joseph F. Evans, president of the Eastern Supply Association, made talks which were received with interest and enthusiasm. The association particularly endorsed the position of the steel manufacturers in reference to the open shop.

The attendance was as follows:

Akron, O.—The Hardware & Supply Co., Fred H. Steffens.
Algoma, Wis.—Plumbers Woodwork Co., S. H. Newman.
Anderson, Ind.—May Supply Co., I. E. May.
Atlanta, Ga.—General Supply Co., Lowry Co.
Barberton, O.—Pittsburgh Valve & Fittings Co., F. S. Crumley.
Birmingham, Ala.—Hammond-Byrd Iron Co., J. G. Hendrick and P. H. Neal; Jefferson Plumbers & Mill Supply Co.
Bloomington, Ill.—The Kaiser-Van Leer Co., B. C. Van Leer.
Buffalo, N. Y.—W. A. Case & Son Mfg. Co., C. W. Fell.
Burlington, Wis.—Burlington Brass Works.
Bushnell, Ill.—Bushnell Pump Co., W. M. West.
Cedar Rapids, Ia.—Cedar Rapids Pump Co., W. C. LaTourette; Chandler Pump Co.; Dearborn Brass Co., C. A. Tiffany.
Chattanooga, Tenn.—The Cahill Iron Works, F. H. Caldwell.
Chicago, Ill.—W. D. Allen Mfg. Co., W. C. Donlevy; Amalgamated Machinery Corporation, Chas. Spalding; American Radiator Co., Chas. K. Foster; Beneke & Kropf Mfg. Co., Geo. I. Blowers; A. M. Byers Co., Cephas Taylor, Jr.; Chicago Granitine Mfg. Co., R. S. Grogan; Chicago Nipple Mfg. Co., Dixon C. Williams; Chicago Pottery Co., T. H. Harker; Jas. B. Clow & Sons, W. E. Clow, Jr.; Crane Co., C. D. Little; The Davies Supply Co., E. Buehler; S. Deschauer Co., O. J. Deschauer; Federal-Huber Co., A. F. Johnson; The Goulds Mfg. Co., Robert E. Hall; Hammond-Byrd Iron Co., Wm. B. Neal; Henion & Hubbell; Hoelscher Bros., Ed. C. Hoelscher; Hoffman Specialty Co., E. S. Storm, C. W. Adams; Illinois Malleable Iron Co., J. R. Steneck, John J. Leahy; International Heater Co., D. E. McCabe; Jones & Laughlin Steel Co., M. A. Blessing; Kellogg-Mackay Co., C. V. Kellogg; Kohler Co., W. E. Tillman; LaBelle Iron Works, Wilmer Wickersham; Leader Iron Works, L. M. O'Neill; National Plumbing & Heating Supply Co., E. C. Garrity; The Nye Tool & Machine Works; H. S. Raymond, W. F. Jones; Richardson & Boynton Co., G. E. Murch; Richmond Radiator Co., A. H. Schroth; J. J. Ryan & Co., J. J. Ryan, Jr.; Spang, Chalfant & Co., Inc., W. M. Thompson; Steel & Tube Co. of America, Frank F. Corby, C. W. Larsen, W. E. Corby, L. W. Miller; Street & Kent Mfg. Co., C. D. Street, Wm. B. Dale, W. J. Street; C. C. Todd, represented by C. C. Todd; Weil Bros., I. Weil; Weir & Craig Co., James Weir; Western Plumbing Supply Co., John J. Tyne; Whitney & Ford; S. Wilks Mfg. Co., E. W. Sedgwick.
Cincinnati, O.—John Douglas Co.; Lunkenheimer Co., D. J. Cahill; Merkel Brothers Co., Louis J. Merkel; Murdock Mfg. & Supply Co., John G. Murdock, Jr.; Pfau Mfg. Co., H. Schumacher and J. Downing.
Cleveland, O.—The A. D. Dennison Co.; Kennedy Company, W. G. Callow; Republic Brass Co.; Hiram Rivitz Co., Hiram S. Rivitz; Welker Supply Co., Adam Welker.
Columbus, O.—Columbus Supply Co., Jos. V. Falkenbach; Scioto Valley Supply Co.
Dayton, O.—The Dayton Supply Co., Jos. A. Abel; M. J. Gibbons Supply Co., M. J. Gibbons, Jr.; Philip Haas Company; Kuhns Bros., W. L. Kuhns; The Valle-Kimes Co., H. A. Stamper.
Decatur, Ill.—Field & Shorb Co., W. R. Batchelder; Leader Iron Works, T. E. O'Brien.
Denver, Colo.—Hedges-Atkins Supply Co.; M. J. O'Fallon Supply Co., M. J. O'Fallon.
Des Moines, Ia.—Globe Machinery & Supply Co., F. W. Swanson; L. H. Kurtz Co., Louis C. Kurtz.
Detroit, Mich.—Commonwealth Brass Corporation, E. W. Sanborn and A. S. Lindeblad; Detroit Lubricator Co., S. A. Witt; Detroit Range Boiler Co., E. W. Sanborn and A. S. Lindeblad; Detroit Valve & Fittings and Detroit Brass Works, Milton A. Meier, F. L. Uhl, H. F. Meyer; A. Harveys Sons' Mfg. Co., Ltd., Geo. G. Harvey; Kimball-Eisenberg Co.; The McRae & Roberts Co.; Michigan Plumbing Supply Co., Edward F. Klein; Murray W. Sales & Co.; Sterling & Skinner Mfg. Co., R. R. Sterling; Walker Mfg. & Supply Co., John Walker.
Dubuque, Ia.—Kretschmer Mfg. Co., F. N. Kretschmer; A. Y. McDonald Mfg. Co., Robt. T. Johnson.
Eau Claire, Wis.—W. H. Hobbs Supply Co., W. H. Hobbs.
Erie, Pa.—Hays Mfg. Co., F. J. Reed.
Evansville, Ind.—Never-Split Seat Co.
Fort Dodge, Ia.—Leighton Supply Co., E. I. Leighton.
Fort Wayne, Ind.—P. & H. Supply Co., C. J. Stier.
Grand Haven, Mich.—William Heap & Sons, Wm. Heap.
Grand Rapids, Mich.—Ferguson Supply Co., Ltd.; Wolverine Brass Works.
Green Bay, Wis.—Murphy Supply Co.
Greenville, O.—The Treaty Co., Geo. F. Taylor.
Houston, Tex.—Keithly Co., J. P. Keithly.
Indianapolis Ind., Central Supply Co., Robt. Blee Rhoads.
Joplin, Mo.—Plumbers Supply Co.
Kalamazoo, Mich.—Bond Supply Co., Fred J. Bond.
Kansas City, Mo.—Kansas City Pump Co.; U. S. Radiator Corporation, R. W. Hillman; U. S. Water & Steam Supply Co.; W. B. Young Supply Co., Geo. H. Gorton.
Kenosha, Wis.—Frost Mfg. Co., L. W. Howitt, T. J. McCann, O. H. Theleer, J. W. Palmer.
Kewanee, Ill.—Kewanee Boiler Co.
LaCrosse, Wis.—LaCrosse Plumbing Supply Co.; W. A. Roosevelt Co., F. F. Flock.
Lincoln, Neb.—Cornell-Searl Co., J. C. Cornell and A. F. Paige.
Louisville, Ky.—Laib Co., Geo. H. Laib.
Mannington, W. Va.—Bowers Pottery Co., E. W. Sanborn and A. S. Lindeblad.
Mansfield, O.—The Barnes Mfg. Co., T. R. Barnes; Hughes Supply Co.; Humphryes Mfg. Co., E. C. Strinskey; Ohio Brass Co., W. T. Jameson.
Marietta, O.—Becker Manufacturing Co.
Mason City, Ia.—Hawkeye Supply Co., C. B. Sherman.
Milwaukee, Wis.—F. R. Dengel Mfg. Co., F. R. Dengel; B. Hoffman Mfg. Co., August L. Seelman; Hoffmann & Billings Mfg. Co., E. F. Niedecken; Robert Rom Co., G. S. Waite; Rundle-Spence Mfg. Co., E. R. Spence; United Pump & Power Co., P. C. McNulty, Jr., W. H. Parker, C. H. Schonberg; Windsor Mfg. Co., Wisconsin Plumbing & Heating Supply Co.
Minneapolis, Minn.—Central Supply Co., P. J. Frey; The D. M. Gilmore Co.; Roberts-Hamilton Co., L. L. Hamilton.
Muncie, Ind.—George Keiser & Co.
Muskogee, Okla.—Atlas Supply Co., J. H. McDonald.
New Orleans, La.—Plumbing & Mill Supply Co., Inc., H. J. Veith.
New York, N. Y.—John R. Wettstein, Wm. T. Morgan.
Omaha, Neb.—Omaha Sanitary Supply Co.; United States Supply Co., J. B. Rahm.
Peoria, Ill.—Kinsey & Mahler Co.
Phoenix, Ariz.—J. H. Mulrein Plumbing Supply Co.
Pittsburgh, Pa.—Bailey-Farrell Mfg. Co., W. B. Bryar; Bowman Supply & Mfg. Co., Inc.; A. M. Byers Co., S. P. Broome; Central Tube Co., W. F. Ingals, H. A. Leslie; Jones & Laughlin Steel Co., E. J. Dickson; Republic Iron & Steel Co., A. H. Lorenger, Frank Moore, O. O. Bachman; Wm. B. Scaife & Sons Co., F. W. Peters; Standard Sanitary Mfg. Co., James F. Conran, J. D. Tschopik; United States Sanitary Mfg. Co.
Portsmouth, O.—The Standard Supply Co.
Quincy, Ill.—E. Best Plumbing & Heating Supply Co., A. L. Best; Modern Iron Works, Chas. W. Badger.
Rockford, Ill.—Rockford Brass Works, J. H. Ryerson.
Salem, O.—National Sanitary Mfg. Co., Geo. M. Snyder.
Salt Lake City, Utah.—Mountain States Supply Co.; Joseph Nelson Supply Co.
Sioux Falls, S. D.—Plumbing Supply Co., Chas. D. Symms.
Springfield, Mo.—Harry Cooper Supply Co., B. K. Wait.
St. Joseph, Mo.—The Bristol Co.
St. Louis, Mo.—American Fdy. & Mfg. Co., J. C. Sanders; John C. Kupferle Foundry Co., W. C. Ehrhardt; Monument Plumbing Supply Co., J. D. McGuire; N. O. Nelson Mfg. Co., L. D. Lawnin.
St. Paul, Minn.—Cochran-Sargent Co., G. C. Rugg; Crane & Ordway Co.; Western Supply Co.
Steubenville, O.—LaBelle Iron Works, H. W. Bishop, Jr., H. E. Schaefer.
Sturgis, Mich.—Morency-Van Buren Mfg. Co.
Tampa, Fla.—Coates Plumbing Supply Co.
Terra Haute, Ind.—Frank Prox Co., Frank Prox, Herman C. Prox, Frank L. Fulke.
Toledo, O.—American Plumbers Supply Co., H. A. Schlingman, F. W. Terwilliger; Jos. F. Grosswiller Co.; National Supply Co.; Ohio Plumbers' Supply Co.
Trenton, N. J.—American Sanitary Works, B. O. Tilden.
Union City, Ind.—Knapp Supply Co.
Wabash, Ind.—Honeywell Heating Specialty Co.

Watertown, N. Y.—J. B. Wise, Inc., E. W. Sanborn and A. S. Lindeblad.

Waukegan, Ill.—Northern Brass Mfg. Co., C. S. Johnson, R. R. Schultz.

Wheeling, W. Va.—Trimble & Lutz Supply Co.; Wheeling Sanitary Mfg. Co., F. W. Wheelock, J. E. Wright; Wheeling Steel & Iron Co., Tom Oberhauser.

Wichita, Kan.—Martin Metal Mfg. Co.

Youngstown, O.—Youngstown Sheet & Tube Co., C. E. Calvin, Lew E. Wallace, F. A. Lathrop and G. W. Bostwick.

**Non-Members In Attendance:**

Chicago, Ill.—Kanawha Mfg. Co., J. B. Bernhard; Wm. E. McCollum, Wm. E. McCollum; John Wood Mfg. Co., E. D. Freas.

Cleveland, O.—John Wood Mfg. Co., Joseph Montague.

Conshohocken, Pa.—John Wood Mfg. Co., Frank Sutcliffe.

Evansville, Ind.—W. J. Woolley.

Fort Wayne, Ind.—National Mill Supply Co., S. A. Lehman.

Minneapolis, Minn.—Central Western Credit Association, D. R. Thomas.

South Bend, Ind.—South Bend Supply Co., F. W. Long.

Trenton, N. J.—Thomas Maddock's Sons Co., Jos. Sullivan; Monument Pottery Co., F. K. Dibley.

Wilkes-Barre, Pa., Wyoming Valley Sup. Co., Joseph F. Evans.

## ENTERTAINED ITS RETURNED SOLDIERS.

The Trenton Potteries Co., of Trenton, N. J., gave an entertainment and reception to returned soldiers of its organization on October 22nd. The company has over one hundred stars in its service flag of which several became gold stars during the conflict.

## GAS WATER HEATERS AND RADIATORS FEATURE EXHIBIT AT CONVENTION OF AMERICAN GAS ASSOCIATION AT NEW YORK.

The annual convention of the American Gas Association, held at the Pennsylvania Hotel, New York City, the week of October 13th, was very successful. Many new developments in gas-burning appliances were shown in an exhibit, particularly in gas water heaters and gas-steam radiators. Among the manufacturers who occupied booths were the following:

The Hoffman Heater Co., of Lorain, Ohio, among its products featured a new high-temperature resisting enamel coating on both the shell and burners, as a protection against corrosion due to condensation from the coils. In attendance were: A. H. Babcock, president, and J. M. Jones, secretary and treasurer of the company; T. G. Arrowsmith, general manager; W. L. Hallett, Edward H. Oswald, J. C. Fullerton, C. L. Fairfield, W. H. Arrighi, E. B. Lees, Samuel Barrows and James Wheeler.

The National Tube Co., of Pittsburgh, featured "National" welding-scale free pipe. W. L. Schaeffer, N. C. Nicol, A. L. Harbison, R. M. Hall, E. E. Ellwood and J. M. Denney, were on hand.

H. Mueller Mfg. Co., of Decatur, Ill., exhibited specialties.

The Pittsburg Water Heater Co., of Pittsburgh.; Lawson Mfg. Co., of Pittsburgh; Ruud Mfg. Co., of Pittsburgh; Humphrey Co., of Kalamazoo, Mich.; Lovekin Automatic Gas Water Heater Co.; the Cleveland Heater Co., of Cleveland, O.; the Long, Landreth, Schneider Co., of New Brunswick, N. J., all had on display their latest developments in gas water heaters.

The Abram Cox Stove Co., of Philadelphia, exhibited water heaters and gas and coal stoves. Eighteen of the company's representatives were in attendance.

The United Lead Co., of New York, exhibited lead wool; Elliott Water Heater Co., of Brooklyn, N. Y., gas stove water heaters; Roberts Brass Mfg. Co., of Detroit, brass gas cocks; A. H. Wolff Gas Radiator Co., of New York; James B. Clow & Sons, of Chicago, gasteam radiators; the Mead Gas Heater Co., of Delawanna, N. J., gas steam radiators; B. Ryan & Co., of New York, thermostats for small water heaters.

## WESTERN TRADE GOLF ASSOCIATION CLOSES SEASON AT CALUMET.

The best attended and one of the most enthusiastic seasons in the history of the Western Trade Golf Association was brought to a close on Tuesday, October 21st, when forty-six members and guests turned out to play the Calumet course at Burnside, Ill. Since its formation in 1907, the association has held its final meet at this famous club, but this year the old course goes out of existence. Those who were "in at the death" recalled the many very pleasant times enjoyed in past years, and there was a feeling of regret for its passing. The day's play was held under adverse conditions for good golf, the day being cold and raw, but, in spite of that, many good cards were turned in. The awarding of the season's prizes was an added feature of the day, and the array of trophies contributed by the officers and trade papers was indeed one to inspire all the members.

The morning qualifying round brought out thirty-nine contestants and the consistent stars, L. R. Taylor and C. A. Morrow, tied for low gross honors with 44. Ten flights took part in the afternoon session and got away early in order to finish before dark.

### L. R. Taylor Wins Two Cups.

President C. D. Little presided at the business meeting and announced that the Association Cup had been won by Mr. Taylor with a net of 75. Mr. Morrow had a chance to win the cup outright and made a fine fight, finishing with a 76 net. His only mistake came on the seventeenth green, when he took an eight, as compared with scores ranging from a 2, on the short ninth, to 6s on the rest of the holes. Mr. Taylor took the cup and the replica, but was unable to respond to the call of "fill it up." He also took the silver pitcher, donated by "Domestic Engineering" for the best low qualifying score throughout the season.

The president's trophy, consisting of a golf suit, was won by R. C. Flinder, and the president himself won the handsome silver pitcher contributed by Vice-President Wilmer Wickersham. Vice-President Wickersham came right back and won the beautiful silver vase put up by the "Plumbers' Trade Journal."

A fine fight was put up for "The Metal Worker" trophy, a bag and a set of clubs, by T. N. Johnson and "Joe" Carroll, who tied in the contest for those having closest to 80, average four best scores, season's play. The play-off took place in the afternoon and Mr. Carroll came through, winning 1 up.

### "Lindy" Donates a Caddie.

C. C. Stringer showed himself also a consistent winner by taking the Handicapper's trophy and also that donated by A. S. Lindeblad for the best score turned in by the 30-handicap players. The former prize was awarded also on the same basis, for the season's play, and consisted of a handsome pitcher, while the "Lindy" prize was in the form of a porcelain figure of a Scotch caddie, standing over twelve inches high. Accompanying the caddie was the following verse:

A kindly little fellow is this jolly little caddie,
And if you'll only treat him right you'll say he's quite a laddie.
He won't say much but he'll be always ready for a call,

He'll stand quite still and always keep his eye upon the ball.
To him you tell your troubles and to listen he'll be eager,
He'll try to help you all he can 'cos you're a "Lindy Leaguer."
So when you take him home today, on leaving Calumet,
Just put him on the mantleshelf and treat him like a pet.
Confer with him all winter long and you'll improve your game.
So, "Lindy Leaguer," bear in mind, you're on the road to fame.

The Captain's prize, offered to the runner-up in the 30-handicap players, consisted of a pewter pitcher and was won by Frank Crumley.

The guest's prize, a silver watch fob, was won by Taylor Postell, who had a 90 gross and a net of 76.

**Charley La Fleur Wins Duffer's Cup.**

Charley La Fleur annexed the Duffer's Cup for the second time this season with a snappy 157, and has the honor of retaining it all winter. This lengthy ownership, says the head of the League, should cure Charley once and for all time of ever getting it again.

The report of Handicapper J. P. Dugger, who was not able to be present owing to his vacationing in Hot Springs, Ark., was read, showing the best attended year in the history of the organization, with an average attendance for eight meets of 41½. A vote to send a telegram to Mr. Dugger was concurred in unanimously.

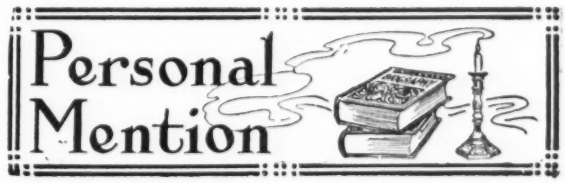
Captain Paul Blatchford announced the result of the match played with the Eastern Trade Golf Association, which the seaboard organization won with an overwhelming majority—111 points to 1. The suggestion made by E. W. Sanborn that teams from the Eastern and Western bodies, ten to a side, play on a neutral course some time next summer, was referred to the board of directors for action in 1920.

After voting to hold the annual meeting in January and giving a rising vote of thanks to the hosts, D. E. McCabe and J. P. Dugger, and the officers of the club, the meeting adjourned.

The scorekeeper's record follows herewith:

**Afternoon Scores, by Flights. *Winners.**

| | Gross | Handicap | Net |
|---|---|---|---|
| H. M. Sedgwick* | 96 | 15 | 81 |
| R. M. Stackhouse | 102 | 20 | 82 |
| W. Wickersham* | 94 | 11 | 83 |
| C. D. Little | 100 | 15 | 85 |
| W. H. Miller | 117 | 24 | 93 |
| Howard Evans* | 123 | 28 | 95 |
| R. A. Widdicombe* | 129 | 30 | 99 |
| Taylor Postell | 90 | 14 | 76 |
| Peter Munn* | 127 | 30 | 97 |
| Chas. LaFleur | 157 | 30 | 127 |
| A. S. Lindeblad* | 130 | 30 | 100 |
| C. W. Clucas | 135 | 30 | 105 |
| Bruce Fulton* | 115 | 29 | 86 |
| W. B. Dale | 122 | 25 | 97 |
| F. K. Dibley | 135 | 29 | 106 |
| C. C. Stringer* | 114 | 30 | 84 |
| H. Illges* | 98 | 19 | 79 |
| R. Andrews | 100 | 20 | 80 |
| C. S. Pitkin* | 115 | 26 | 89 |
| R. C. Flinder | 112 | 24 | 88 |
| Paul Blatchford* | 107 | 19 | 88 |
| N. H. Blatchford | 113 | 25 | 88 |
| L. C. Huckins* | 109 | 20 | 89 |
| H. A. Ingals | 123 | 30 | 93 |
| C. A. Morrow* | 85 | 9 | 76 |
| M. J. Czarniecki | 102 | 18 | 84 |
| L. R. Taylor | 88 | 13 | 75 |
| Mr. Murray | 97 | 20 | 77 |
| D. E. McCabe* | 112 | 21 | 91 |
| H. Wheeler | 101 | 20 | 81 |
| J. F. Carroll* | 102 | 18 | 84 |
| T. N. Johnson | 102 | 17 | 85 |
| A. S. Frampton* | 99 | 19 | 80 |
| A. J. Ewing | 99 | 18 | 81 |
| H. Cross* | 122 | 30 | 92 |
| Ben Nelson | 144 | 30 | 114 |
| H. Booth* | 117 | 30 | 87 |
| F. S. Crumley | 117 | 30 | 87 |
| E. W. Sanborn* | 104 | 19 | 85 |
| C. C. Todd | 122 | 30 | 92 |
| C. H. Bishop* | 108 | 19 | 89 |
| Tom Cusack | 116 | 30 | 86 |




**Alex. B. Pierce,** vice-president of the N. O. Nelson Mfg. Co., St. Louis, Mo., who was elected president of the Central Supply Association last week, has been on an extended trip to the Pacific Coast visiting the company's branch offices. Mr. Pierce is expected back very shortly.

**L. C. Huesmann,** president of the Central Supply Co., of Indianapolis, Ind., addressed the Indianapolis Council, Boy Scouts of America, at its semi-annual meeting in that city last week. His subject was "Scouting and Citizenship."

**F. F. Bulkeley,** Central Western manager for the Thomas Maddock's Sons Co., Trenton, N. J., has gone to Trenton for a short visit.

**Russell D. Knight,** 766 Drexel Building, Philadelphia, announces that Russell B. Kneedler has been appointed office manager of his business.

**L. D. Speed,** who until recently represented the Northwestern Chemical Co., Marietta, O., in Ohio territory, has been promoted to supervisor of the central western territory with headquarters at Chicago.

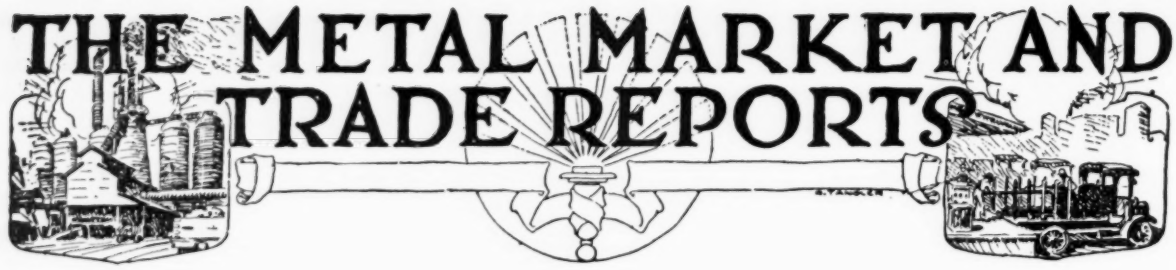
**Wm. B. Neal,** former representative of Hammond-Byrd Iron Co., Birmingham, Ala., has accepted the position of western sales manager for the National Cast-Iron Pipe Co., also of Birmingham, Ala. Mr. Neal has established headquarters in the Peoples Gas Building, Chicago.

**S. A. Witt,** Chicago manager for the Detroit Lubricator Co., Detroit, Mich., has recently returned from a trip through part of his territory west of Chicago and also a visit to the home office. Mr. Witt is opening an office in the Chamber of Commerce Building, which is centrally located on Washington Street between LaSalle and Clark Streets.

**Edward McLundie,** of St. Louis, Mo., a master plumber of thirty years' standing, has been appointed southern branch manager for the Josam Mfg. Co., Michigan City, Ind. Mr. McLundie has taken over his new office and his friends in St. Louis and elsewhere are extending their best wishes for his success.

**H. Lee Koenig** has been appointed to represent the John Wood Mfg. Co., Conshohocken, Pa., in the southeast Atlantic and Gulf states, with offices in the Jefferson County Bank Building, Birmingham, Ala. This territory was formerly handled by the Chicago and Philadelphia representatives of the company, but the growth of the company has necessitated this new arrangement. Mr. Koenig, prior to July 1st, was a captain in the Ordnance Department for two and one-half years, during which time he handled many millions of dollars' worth of contracts and gained much valuable experience.

# THE METAL MARKET AND TRADE REPORTS



### Steel and Iron.

Curtailment in steel output caused by the strike is around 40 per cent, and while the respective parties are usually expected to make strong claims as to what they are accomplishing, the steel producers are showing no disposition to overrate tonnage output, but rather are conservative in their statements. Ingot production during August was at the rate of 30,100,000 tons a year, which would indicate that finished roll steel was being produced at the rate of about 2,500,000 tons a month. A 40 per cent curtailment, therefore, would mean production lost at the rate of 1,000,000 tons a month. In some quarters, however, gains in employment are expected to become rapid in the next week or two, in which case the total loss of tonnage, because of the strike, may not be much over 2,000,000 tons.

There is very little open market buying of steel products, as regular customers of steel have contracts with mills, and the latter on their part are well sold up. Between mills and regular customers there is a fair volume of business being done in the form of regular contracts, deliveries to follow those that are to be made against contracts already on the books.

Prices are firm and inquiries from the trade cover almost every branch of the industry. Steel plates continue to be in demand because of the demand for ships, and new construction work is being rushed. Tank plates for oil country development work is claiming much material at the present time. Prices are being maintained at established levels, although there are instances where holders of some grades of steel are asking premiums for prompt shipment. In exports it was stated by a prominent shipper that conditions are generally satisfactory with South America figuring largely for supplies of railroad material.

Call for spot iron continues at a fairly steady pace, and consumers are said to be covering for their last quarter needs. There are heavy inquiries out, and negotiations are reported on, which will likely result in substantial orders within a short time. Basic iron is coming in for extended demand from makers of steel products, and this has added to the firm tone in the general market. The scrap market shows improvement, and prices for several grades are on the up grade.

Production of the merchant furnaces is nearly normal, as only a few of the merchant furnaces were closed by the strike. At the present time the large steel interests seem to be able to operate their blast furnaces to as great an extent as their steel mills, so that they would hardly need outside iron. Prices remain at the March 21st basis, and while the market is firm it can not be said that it is firmer than just before the strike. Prices for pig iron are quoted as follows:

| | |
|---|---|
| No. 2, Philadelphia | $32.10 |
| No. 2 Southern, Cincinnati | 31.60 |
| No. 2 furnace, Chicago | 26.75 |
| Basic Valley, furnace | 25.75 |
| Bessemer, Pittsburg | 29.35 |

### Copper.

The tone of the copper market last week was quiet, as inquiry was limited. Producers still hold to their 23½ cents per pound price for the last quarter, but admit that there is little business moving. The outside market is around 22½ to 23 cents per pound. The market is steady and buyers are waiting for some kind of break. Producers seem willing to do business and predict that active conditions will soon be realized in the trade. Attention at the present time is directed to the Industrial Conference at Washington, and interests here consider the successful termination of this conference as the best argument for settled conditions.

### Tin.

The tin market is firm with prices unchanged. Levels recognized in the trade are as follows: Straits, spot, available for immediate delivery, 55½ cents; spot on board ship, 55 cents; October from England, 54¾ cents; November, 54½ cents. Local interests report that there was little chance that the supplies on board ship would be available before next week, but if the strike of the longshoremen were terminated, there would be an immediate rush back to work and that conditions would once more become normal.

### Lead.

The lead market is running strong at present, and prices were advanced by the leading interest to 6.50 cents, New York, and 6.25 cents, East St. Louis. In some circles it was announced the price runs as high as 6.60 cents. It is expected that by next week the general market will have settled down to the advance, and active conditions will again be in effect.

### Spelter.

The spelter market continues to show strength. The price for early delivery, East St. Louis shipment, was quoted at 7.55 cents per pound. One interest announced that last quarter could be had for 7.60 cents. Export trade is reported to have reached a level of some 4,000 tons up to the present time. With the steady advances in the London market, the outlook for increased business is believed to be very bright.

### Other Metals.

Quotations on other metals in New York are as follows:

| | |
|---|---|
| Aluminum (in 50-ton lots) | 33 cents per lb. |
| Antimony (Chinese and Japanese) | 8½ cents per lb. |

### New York Old Metal Market.

The following prices are current for old metals:

| | Buying. | Selling |
|---|---|---|
| Copper, heavy | 17 to 17¾ cents | 18¼ cents |
| Copper, light | 15½ to 16 cents | 17 cents |
| Brass, heavy | 10½ to 11 cents | 12 cents |
| Brass, light | 7¾ to 8¼ cents | 9¼ cents |
| Brass, turnings | 10 to 11 cents | 12 cents |

| | | | | | | |
|---|---|---|---|---|---|---|
| Lead, heavy | 5⅞ | to | 6 | cents | 6¼ | cents |
| Tea lead | 4⅜ | to | 4½ | cents | 5 | cents |
| Zinc | 5 | to | 5¼ | cents | 6 | cents |
| Solder joints | | | 9½ | cents | 10½ | cents |
| Mixed babbitt | | | 6½ | cents | 7 | cents |
| Composition turnings | 14 | to | 14½ | cents | 15½ | cents |
| New brass clippings | 12½ | to | 13 | cents | 14 | cents |
| Tin foil | 38 | to | 40 | cents | 41 | cents |
| Cast aluminum | | | 25 | cents | 26 | cents |
| Block tin pipe | 49 | to | 50 | cents | 51 | cents |
| No. 1 pewter | 38 | to | 40 | cents | 41 | cents |
| New aluminum clippings | | | 27 | cents | 28 | cents |
| No. 1 aluminum borings | 15½ | to | 16 | cents | 17 | cents |
| Old sheet aluminum | | | 26 | cents | 27 | cents |

### Chicago Old Metal Market.

**Chicago wholesale dealers' prices are nominally as follows:**

| | Buying. | | | | Selling. | |
|---|---|---|---|---|---|---|
| Heavy yellow brass | 10¼ | to | 10¾ | cents | 11¾ | cents |
| Brass, light | 9¾ | to | 10¼ | cents | 11¼ | cents |
| Brass borings | 14¼ | to | 14½ | cents | 15 | cents |
| Brass turnings | 10¼ | to | 10½ | cents | 11 | cents |
| Red brass | 16¼ | to | 16¾ | cents | 17¾ | cents |
| Copper, crucible | 18 | to | 18¼ | cents | 19 | cents |
| Copper, heavy | 17½ | to | 17¾ | cents | 18¾ | cents |
| Copper, light | 15¼ | to | 15¾ | cents | 16½ | cents |
| Lead, heavy | 5¼ | to | 5½ | cents | 6 | cents |
| Tea lead | | | 3½ | cents | 4 | cents |
| Zinc | | | 5 | cents | 5¾ | cents |
| Solder joints | 10½ | to | 11 | cents | 12 | cents |
| Cast aluminum | 25 | to | 26 | cents | 27 | cents |
| No. 1 pewter | 38 | to | 40 | cents | 41 | cents |
| Block tin pipe | 53 | to | 55 | cents | 56 | cents |
| Tin foil | 37 | to | 39 | cents | 41 | cents |
| Aluminum borings | 16 | to | 17 | cents | 18 | cents |
| New aluminum clippings | 26 | to | 27 | cents | 28 | cents |
| Electrotype metal | 5 | to | 5¼ | cents | 6 | cents |

### The Pipe Market.

Quotations on less than car lots of full weight steel pipe are as follows:

| | Butt Weld | | Lap Weld | |
|---|---|---|---|---|
| | Blk. | Galv. | Blk. | Galv. |
| ⅛ to ⅜ inch | 46½ | 18½ | ..... | ..... |
| ½ inch | 50½ | 34½ | ..... | ..... |
| ¾ to 3 inch | 53½ | 38½ | ..... | ..... |
| 2 inch | ..... | ..... | 46½ | 32½ |
| 2½ to 6 inch | ..... | ..... | 49½ | 35½ |
| 7 to 12 inch | ..... | ..... | 44½ | 29½ |

The quotations apply to all shipments from stock, regardless of quantity.

On extra strong and double extra strong steel pipe in less than car lots, quotations are as follows:

| | Extra Strong | | | | Double Extra Strong | | | |
|---|---|---|---|---|---|---|---|---|
| | Plain Ends | | Plain Ends | | Plain Ends | | Plain Ends | |
| | Butt Weld | | Lap Weld | | Butt Weld | | Lap Weld | |
| | Blk. | Galv. | Blk. | Galv. | Blk. | Galv. | Blk. | Galv. |
| ⅛, ¼ and ⅜ inch | 37½ | 12½ | ..... | ..... | ..... | ..... | ..... | ..... |
| ½ inch | 42½ | 17½ | ..... | ..... | 30½ | ..... | ..... | ..... |
| ¾ to 1¼ inch | 46½ | 21½ | ..... | ..... | 33½ | ..... | ..... | ..... |
| 2 to 2½ inch | 47½ | 22½ | ..... | ..... | 35½ | ..... | ..... | ..... |
| 3 inch | 47½ | 22½ | ..... | ..... | ..... | ..... | ..... | ..... |
| 2 inch | ..... | ..... | 39½ | 14½ | ..... | ..... | 28½ | ..... |
| 2½ to 4 inch | ..... | ..... | 42½ | 17½ | ..... | ..... | 30½ | ..... |
| 4½ to 6 inch | ..... | ..... | 41½ | 16½ | ..... | ..... | 29½ | ..... |
| 7 to 8 inch | ..... | ..... | 35½ | 10½ | ..... | ..... | 22½ | ..... |
| 9 to 12 inch | ..... | ..... | 30½ | ..... | ..... | ..... | ..... | ..... |

With threads only, the basing discount is 1½ points lower. With threads and couplings the basing discount is three points lower. The quotations apply to less than car lots.

Quotations on full weight genuine iron pipe, in less than car lots, are as follows:

| | Butt Weld | | Lap Weld | |
|---|---|---|---|---|
| | Blk. | Galv. | Blk. | Galv. |
| ⅛ to ¼ inch | 23½ | +5½ | ..... | ..... |
| ⅜ inch | 24½ | +4½ | ..... | ..... |
| ½ inch | 28½ | 8½ | ..... | ..... |
| 1¼ inch | 33½ | 15½ | ..... | ..... |
| ¾ and 1 inch | 33½ | 15½ | ..... | ..... |
| 1½ inch | 33½ | 15½ | ..... | ..... |
| 2 inch | ..... | ..... | 26½ | 10½ |
| 2½ to 6 inch | ..... | ..... | 28½ | 13½ |
| 7 to 12 inch | ..... | ..... | 23½ | 8½ |

These quotations are f. o. b. Pittsburgh, and apply to all shipments from stock, regardless of quantity.

On extra strong and double extra strong genuine wrought iron pipe, with plain ends, and in less than car lots, the quotations are as follows:

| | Extra Strong | | | | Double Extra Strong | | | |
|---|---|---|---|---|---|---|---|---|
| | Butt Weld | | Lap Weld | | Butt Weld | | Lap Weld | |
| | Blk. | Galv. | Blk. | Galv. | Blk. | Galv. | Blk. | Galv. |
| ⅛ to ⅜ inch | 17½ | +10½ | ..... | ..... | ..... | ..... | ..... | ..... |
| ½ inch | 22½ | + 5½ | ..... | ..... | ..... | ..... | ..... | ..... |
| ¾ and 1 inch | 28½ | ½ | ..... | ..... | ..... | ..... | ..... | ..... |
| 1¼ inch | 28½ | ½ | ..... | ..... | ..... | ..... | ..... | ..... |
| 1½ inch | 28½ | ½ | ..... | ..... | ..... | ..... | ..... | ..... |
| 2 inch | ..... | ..... | 22½ | + 2½ | ..... | ..... | ..... | ..... |
| 2½ to 4 inch | ..... | ..... | 24½ | + 1½ | ..... | ..... | ..... | ..... |
| 4½ to 6 inch | ..... | ..... | 24½ | + 1½ | ..... | ..... | ..... | ..... |
| 7 to 8 inch | ..... | ..... | 14½ | +11½ | ..... | ..... | ..... | ..... |
| 9 to 12 inch | ..... | ..... | 8½ | +16½ | ..... | ..... | ..... | ..... |

These retail prices are f. o. b. Pittsburgh, and apply to all quantities except in car lots. With threads only, the basing discount is 1½ points lower. With threads and couplings, the basing discount is 3 points lower.

To ascertain the price in your city, deduct the proper less-than-carload freight rate from Pittsburgh to that city. Example: Base price on ¾ to 3 in. black steel pipe is 53½ per cent Pittsburgh. The less-than-carload rate to Patson is 17 cents per hundred. The price, therefore, freight allowed to Patson is

53.5
1.7

51.8 per cent.

All other sizes to be figured on a comparative basis.

### The Pipe Market in New England and in Parts of New York State.

In New York State on all points on the Hudson River, and in all of New York State south and east of Albany, in all New England and for export, quotations are as follows:

**Wrought Steel Pipe.**

| | Black | Galv. |
|---|---|---|
| ⅛ to ⅜ inch | 38 | 4 |
| ½ inch | 43 | 26 |
| ¾ to 3 inch | 47 | 31 |
| 2 inch lap | 38 | 23 |
| 2½ to 6 inch | 42 | 27 |
| 7 to 12 inch | 33 | 16 |

**Extra Heavy.**

| | Black | Galv. |
|---|---|---|
| ⅛ to ⅜ inch | 31 | + 2 |
| ½ inch | 37 | 12 |
| ¾ to 1½ inch | 42 | 18 |
| 2 to 3 inch | 43 | 19 |
| 2 inch lap | 34 | 10 |
| 2½ to 4 inch | 37 | 14 |
| 4½ to 6 inch | 31 | 12 |
| 7 and 8 inch | 25 | 4 |
| 9 to 12 inch | 18 | + 3 |

**Double Extra Heavy.**

| | Black | Galv. |
|---|---|---|
| ½ inch | 16 | ..... |
| ¾ to 1½ inch | 21 | ..... |
| 2 to 2½ inch | 23 | ..... |
| 2 inch lap | 14 | ..... |

| | | |
|---|---|---|
| 2½ to 4 inch | 16 | .... |
| 4½ to 6 inch | 15 | .... |
| 7 to 8 inch | 2 | .... |
| 14 to 20 inch O. D. | 20 | .... |

**Genuine Wrought Iron Pipe.**

| | Black | Galv. |
|---|---|---|
| ⅛ to ¼ inch | 12 | +25 |
| ⅜ inch | 13 | +24 |
| ½ inch | 18 | + 4 |
| ¾ to 1½ inch | 25 | 5 |
| 1¼ inch lap | net | +19 |
| 1½ inch | 12 | + 6 |
| 2 inch | 16 | + 2 |
| 2½ to 6 inch | 18 | 1 |
| 7 to 12 inch | 6 | +12 |

**Extra Heavy.**

| | Black | Galv. |
|---|---|---|
| ⅛ to ⅜ inch | 3 | +30 |
| ½ inch | 13 | +17 |
| ¾ to 1½ inch | 21 | +11 |
| 1¼ inch lap | net | +34 |
| 1½ inch | 10 | +21 |
| 2 inch | 13 | +17 |
| 2½ to 4 inch | 15 | +13 |
| 4½ to 6 inch | 6 | +14 |
| 7 to 8 inch | + 5 | +26 |
| 9 to 12 inch | +12 | +33 |

For pipe handled through shop or cut to length, add 10 per cent to the net price of pipe.

Cutting and threading 12 inch and smaller—net list prices.

Cutting and threading 14 inch and larger—25 per cent discount from list prices.

Cutting only, two-thirds of the threading price.

These prices include cartage to point of destination, if same is within cartage limits—for domestic purposes. If outside the cartage limits, they are f. o. b. shipping point, with actual freight allowed to destination, not exceeding 20c per 100 lbs. When shipped for export, the price includes cartage to point of shipment, if same is within reasonable cartage limits—with no freight allowance.

## LITTLE CHANGE IN PLUMBING AND HEATING MATERIAL FIELD—FAVORABLE OUTLOOK FOR FALL CONSTRUCTION.

Chicago, October 22nd.—Manufacturers and jobbers in the plumbing and heating material field report little change in the situation that has been prominent for some time past. From the brass goods field comes information that a slight increase that is more or less general has taken place as regards Fuller work. It is also reported that prices in the range boiler market have been withdrawn. No new developments have taken place in the soil pipe market and the same is true of boilers and radiation, which were advanced in the neighborhood of 10 per cent about a month ago. The enameled ware field continues to experience plenty of business. Everywhere one hears the same old story that the ability to ship goods promptly is more important than what prices are in effect.

### Contractors Find Skilled Labor Scare.

The scarcity of labor is not confined to the manufacturers. Locally and in the country districts it is reported that contractors doing plumbing and heating work have difficulty in obtaining skilled workers. One of the reasons offered is that journeymen who went into other fields of endeavor have not returned, which is said to be particularly true of the shipbuilding yards, where good wages are paid. Operations, therefore, in some instances are curtailed because of this condition.

### Fall Building Program Encouraging.

Not even an unfavorable season of fall weather can curb the optimism which results in awarded contracts, and they are about as sure an index one can get that construction is to be done. Contracts awarded in the territory east of the Missouri and north of the Ohio Rivers during the week ending October 10th are exceeded by only one week since the first week of September. The total estimated value for the week's planned work was $74,057,646.

These values become more pronounced when compared to the fact that the average valuation per week for the summer period from July 5th to September 6th, is $57,052,800.

The awards by districts for the week ending October 10th are as follows:

| | Number of Awards. | Estimated Valuation. |
|---|---|---|
| New York | 319 | $11,500,506 |
| Boston | 240 | 6,384,925 |
| Philadelphia | 303 | 12,582,891 |
| Pittsburgh | 298 | 16,650,954 |
| Chicago | 821 | 24,715,567 |
| Minneapolis | 101 | 2,222,803 |
| | 2,082 | $74,057,646 |

### Residential Building Leads in Construction.

Residential building activity is an optimistic aspect of the analysis of awards according to classes of construction as will be noted by observing its relative amount in the following tabulation:

| | | |
|---|---|---|
| Business buildings | 289 | $ 8,876,417 |
| Educational buildings | 48 | 3,346,175 |
| Hospitals and institutions | 22 | 2,114,910 |
| Industrial buildings | 261 | 20,504,400 |
| Military and naval buildings | 5 | 255,000 |
| Public buildings | 19 | 415,061 |
| Public works and public utilities | 172 | 11,086,383 |
| Religious and memorial buildings | 32 | 648,250 |
| Residential buildings | 1,202 | 23,777,100 |
| Social and recreational buildings | 32 | 3,033,950 |
| Total | 2,082 | $74,057,646 |

### Malleable Capacity Idle.

In connection with the insistent demand for malleable castings, the American Malleable Castings Association reports that this condition has been anticipated and that ample facilities have been provided for both the present and future expansion of the industry.

It is stated, however, that at the present time the shortage of unskilled labor will not permit this great capacity being used. Fully 200,000 tons of malleable capacity are today idle but would be immediately available if the necessary labor could be secured.

Improvement in this direction is not expected with any great hope until the activities of other industries are curtailed or until there is a flow of immigration sufficient to build up the supply of labor available for foundry work.

This means, therefore, a large percentage of capacity idle continuously in every plant regardless of heavy unfilled orders.

## JAMES SWEENEY CALLED BY DEATH.

James Sweeney, who conducted a plumbing establishment at 13 West Brady St., Tulsa, Okla., died at his home in that city a few days ago of heart failure. Mr. Sweeney had apparently been in the best of health and the news of his death came as a shock to his many friends in the trade.

**The New York Times** states that in Salvador two decrees have been enacted, one establishing a gold standard for the country, the other fixing exchange at two colombo for one dollar gold, also making United States gold coin legal tender generally and United States bank bills legal tender in payments to banks.

# AMONG THE PLUMBING AND HEATING CONTRACTORS

### Chicago and Vicinity.

The John R. Kehm Co., 8 East Austin Avenue, has the contract to install heating equipment in a million-dollar, 24-family apartment building being built at Sheridan Road and Roscoe Boulevard for H. L. Goetz. P. J. Weber, 343 South Dearborn Street, is the architect.

Noble & Thumm, 2313 North Lincoln Avenue, will install plumbing and heating systems in the new apartment building at 4624-4630 Monticello Avenue.

Nilson Bros., 3222 North Halsted Street, will install plumbing in the $50,000 factory being erected at Cornelia Avenue, Newport Avenue and Seminary Street, from plans prepared by Architect Louis Lehle, 3739 Pine Grove Avenue.

M. Cohen, 1946 West Division Street, has the contract to install plumbing in the Triangle Apron Co.'s factory addition at 2510-2516 Montrose Avenue. Heating equipment will be put in by Martin C. Opsahl, 1478 Catalpa Avenue.

The contract for the installation of plumbing and heating in the $75,000 factory building, which is being erected at South Chicago Avenue between 83rd and 85th Streets, by Gill Mfg. Co., has been awarded to Thos. J. O'Malley, 308 West Oak Street.

The plumbing and heating contract for a dairy plant to be erected at 1522 North Sedgwick Street, has been secured by Gus Sorge, 928 North Francisco Avenue.

E. R. Norman, 707 Main Street, Evanston, will install plumbing and heating systems in the $15,000 residence which is to be erected at 2214 Orrington Avenue.

The plumbing contract for two one-story residences, which are being erected at 1937-39 South 58th Court, Cicero, has been awarded to C. J. Kostlevy, 4135 West 25th Place, Chicago.

J. J. Dally, 408 North Wells Street, has secured the contract for the installation of plumbing in the five-story warehouse and office building, which will be erected at 44th and Taylor Streets.

Architect W. P. Whitney, 38 S. Dearborn Street, has completed plans for the remodeling of the apartment building at 1538-60 East 63rd Street, into a five-story kitchenette apartment and cafeteria building. It is estimated that the alterations will cost $170,000.

Architect A. L. Himelblau, 179 West Washington Street, has prepared plans for a forty-two family apartment building which is to be erected on Sunnyside Avenue, near Clarendon Avenue, at a cost of $150,000.

The plans for a $125,000 three-story apartment building to be erected on Ashland Avenue, near Montrose Boulevard, have been completed by Architect Carl W. Westerlind, 179 West Washington Street.

Plans for a forty-two family apartment building, to be erected on Barry Avenue near Sheridan Road, are being finished by Architect A. Sandegren, 25 North Dearborn Street. This structure it is estimated will cost $100,000, and will be three stories high.

Architect Oscar Wenderoth, 1907 South Michigan Avenue, is finishing the plans for the $500,000 bank building which is to be erected on Robey Street and North Avenue.

Architect A. L. Levy, 111 West Washington Street, has completed plans for the erection of a synagogue and community house, at Karlov Avenue and Washington Boulevard, to cost about $175,000.

### Other Cities in the State.

Plans have been drawn for a two-story clubhouse to be erected at Lake Bluff by Architect Robert Worke, 220 South Michigan Avenue, at an estimated cost of $50,000.

Architects De Rosa & Cavalieri, Moline, have prepared plans for the erection of a $108,000, six-story warehouse, which will be built for the Crandall Transfer and Warehouse Co., in that city.

Architect J. W. Kennedy, East St. Louis, has prepared plans for the erection of a high school at Johnson City, to cost approximately $125,000. The building is to be of brick and semi-fireproof.

## Indiana

### Indianapolis and Vicinity.

Three men entered C. Aneshaensel & Co.'s plumbing shop at 606 Massachusetts Avenue, Indianapolis, shortly before the noon hour Saturday, and while two of them drew the attention of the manager, James W. Burton, to the front of the store, the third slipped into an enclosed office at the rear and took $65 from the safe. Burton did not discover the robbery until about five or ten minutes after it occurred, and the robbers succeeded in eluding the police.

Kirkhoff Bros. & McElwaine, Inc., 11 and 15 North New Jersey Street, Indianapolis, have been awarded the contract for the installation of plumbing and heating systems in the new Falender building that is to be erected on South Street, between Senate and Capitol Avenues, Indianapolis. The firm also was the successful bidder for the plumbing and heating contracts on the new addition to J. D. Adams & Co.'s factory at 317 South Belmont Avenue, Indianapolis.

The plumbing contract on the new apartment building that is to be erected on Balsam Avenue, between Thirty-fifth and Thirty-sixth Streets, Indianapolis, for the Circle City Construction Co., has been awarded to William F. Steck, 1005 West Michigan Street. The heating contract on the building was awarded to the firm of Freyn Bros., 31 West Michigan Street.

Indianapolis real estate dealers declare that unless more houses are erected soon to relieve the housing situation, the city will be unable to take care of its increasing population. Many new houses, expensive and moderately

priced, have been built during the summer, but the majority have been homes for the owners or for sale. The great trouble seems to be the scarcity of rental property, the real estate men say.

A new two-story residence is to be erected at Central Avenue and Fortieth Street, Indianapolis, for Herbert Selig, of the Selig Dry Goods Co., and contracts for the plumbing and heating of the same will be awarded at an early date.

Bids have been received for the construction of an ice storage building for the north plant of the Polar Ice & Fuel Co., at Twentieth Street and Northwestern Avenue, Indianapolis. The building will be one of a number of similar structures to be erected at the company's three plants.

Bids are being received for the construction of a two-story residence at 4550 Central Avenue for Robert Hawkins, 3125 College Avenue, Indianapolis. The building, which will be of brick veneer, will have modern heating and plumbing.

Work has been started on a new apartment building for the Delaware Realty Co., at 2721 North Meridian Street, Indianapolis. The structure will be three stories high and will have eighteen apartments, six to each floor.

The plumbing ordinances at Kokomo, which have been the bone of contention at most of the council meetings for the last twelve months, are now out of the way. They were repealed at the last meeting of the council.

### Cleveland and Vicinity.

The fifth annual clam bake of the Cleveland Association of Heating and Piping Contractors was held Saturday, October 18th. The party was under the personal guidance of Edward Maurer. The members of the association and their friends were requested to meet at Miller's on Broadway Road at 2 p. m. After a ball game between the supply men and the contractors, the sixty people, who were present, enjoyed the regular clam bake supper, at which Mr. Maurer presided as toastmaster. A musical entertainment marked the closing of this enjoyable event.

Architects Walker & Weeks, of 1900 Euclid Building, Cleveland, have prepared plans for the $150,000 bank building to be erected at Thirty-fifth Street and Broadway, by the Broadway Savings & Trust Co. The building is to be two or three stories high.

A $25,000 residence and garage will be erected at Cleveland Heights. The plans, which are being prepared by Architect Willard Hirsch, 708-1900 Euclid Building, Cleveland, are nearly completed.

A $300,000 factory building is in process of construction at East Thirtieth Street and Superior Avenue, in Cleveland, which will cost approximately $200,000. The contract for the installation of the heating system in this building has been awarded to the J. Roemer Heating Co., 1808 East Twenty-second Street.

The contract for the installation of heating and plumbing systems in the one-story factory building at 6509 Hough Avenue, has been awarded to Schneider Plumbing Co., 4420 Euclid Avenue. This building, it is estimated, will cost in the neighborhood of $50,000.

A mill and foundry will be erected at Harvard Avenue and Newburgh Street by the Co-operative Stove Co., of Cleveland, to cost about $300,000. The heating and plumbing contracts have been secured by the Koblitz Plumbing Co., of 1310 Huron Road.

The contract for the installation of the plumbing in the new office building, which is being erected at Quincy Street and Woodhill Road, by the National Malleable Castings Co., of Cleveland, was secured by Warden & Leese, 2450 Prospect Avenue. The building will cost approximately $725,000.

The heating contract for the two-story residence, which is being erected by H. W. Brown & Son, at 11206 Edgehill Road, Cleveland, was awarded to Price & Walker; the plumbing will be installed by George Lorentz, 6203 Superior Avenue, also of Cleveland. This structure will cost about $40,000.

### Cincinnati and Vicinity.

Unrestricted prosperity continues to be the rule among the plumbing and heating interests in the Queen City and vicinity. Scarcity of help and materials are the only things that concern the bosses right now. Work is plentiful, with more work being piled right on top of the already large volume of business.

J. H. Wiener will build a moving picture house at Akron, and has commissioned Architects Ditto, Fahnestock & Ferber, of Cincinnati, to draw the plans. The theater will have a seating capacity of 1,500.

Approximately $100,000 is to be spent by the William Stacey Storage Co. on the construction of an addition to its warehouse on Gilbert Avenue.

The Cincinnati Rubber Manufacturing Co. will double its present capacity by the erection of a new building just south of the old factory on Franklin Avenue, Norwood, at a cost of $350,000. Architects Zettel & Rapp will prepare the plans.

The Norwood Board of Education has sold an additional issue of bonds to take care of the construction of the new Allison Street school, the building of which was postponed because of the war.

The Bethlehem Methodist Church will build a church and parish house on Walnut Hills. Bodenstein & Surman are the architects.

The heating contract for the four-story building for the Dalton Adding Machine Co., in Norwood, has been awarded to the M. H. Crane Estate, and the plumbing to Thomas Canary. The building will cost more than $100,000.

### St. Louis and Vicinity.

The Bridge & Beach Manufacturing Co. has secured permits for the construction of a new plant, to cost $430,000, to be erected on North Union Boulevard, near the Terminal Railroad tracks. The company will abandon its old plant on South First Street within six months, it is announced. "The new buildings will be in the industrial center of St. Louis, where there will be room for expansion," said L. H. Booch, vice-president and manager of the company. "Our business has increased to such an extent that we have found it impossible to supply the demands in our old plant. The new factory will require twice as many employes and we plan to double our output." The company now employs 350 men. A series of eight buildings of steel, brick and concrete will be erected on the new site. The general construction contract has been awarded to the Fruin-Colnon Construction Co., of St. Louis, and work will be started immediately.

The Warner Jenkinson Co., 2626 Baldwin Avenue, has awarded a contract to install a steam heating boiler and pip-

ing in its plant to Urbauer-Atwood Co., 117 South Eleventh Street. About $1,300 worth of work is involved.

Bids are being taken for the plumbing and heating work in connection with the erection of a $10,000 residence at 4928 Natural Bridge Road, by S. G. Lewis, 4883 Natural Bridge Road.

The Bayer Steam Soot Blower Co., 2828 La Salle Street, is erecting a one-story machine shop, 100x200 ft., at 4065 Park Avenue, at a cost of $30,000.

E. P. Ambler, 2822 La Salle Street, has been awarded a contract to install a steam heating boiler in the plant of the Foster Baking Co., 4477 Chouteau Avenue. The contract amounts to $2,200.

Already forecasts for big business in the building line next spring are being made in St. Louis. A number of big projects are under way and will be launched as soon as severe weather will have come and gone. Among the work which will mature in the srping are a $200,000 hospital, which will be erected at Page and Union Boulevards, by the St. Vincent's Institute of Normandy, Mo., and a large wine plant of Garret & Co., New York, in the North Union Boulevard industrial district.

The C. S. Moynihan Plumbing Co., 2602 North Spring Avenue, has been awarded the plumbing contract in connection with the erection of a $20,000, three-story factory building at Garfield and Prairie Avenues for the American Packing Co.

The Eichler Heating Co., Railway Exchange Building, was low bidder for the heating contract in connection with the alteration of the Old Mercantile Club Building, Seventh and Locust Streets, which is being remodeled for the W. H. Compton Investment Co., at a cost of $100,000.

C. O. Smith Plumbing Co., 4025 Forest Park Boulevard, has been awarded the plumbing contract for the $200,000 station and salesroom now being erected at Leonard and Locust Streets for the United Motors Service, Inc.

C. M. Feist, 1817 West Sixteenth Street, has been awarded the plumbing contract on a $15,000 store and office building being erected at 202-212 Third Street, for S. C. Servier & Co.

# Kentucky

### The Housing Situation in Louisville and Vicinity.

Several inquiries have been heard in Louisville lately relative to the volume of housing shortage that exists, and plans have been discussed for making a survey of the actual shortage. Real estate men have been quoted as stating that Louisville is short 1,000 or more homes to take care of increased industrial growth, families of officers at Camp Taylor, and natural growth of the city. Rentals have jumped twenty-five to forty per cent in many instances, and resale values of desirable property have advanced as much as fifty per cent in some instances.

During the past three years, ending January 1, 1919, a total of 812 residences were constructed. During the prior three years 2361 residences were erected. This resulted in a net reduction of 1,549 residences erected during the past three years. Then considering the fact that Louisville is a larger city than it was in 1913, 1914, 1915 and even 1916, the growth during the past three years should have been even greater to take care of the demands of the city.

One real estate man when confronted with the figures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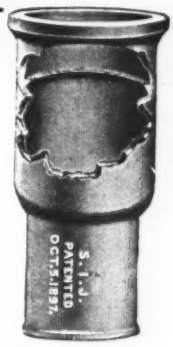


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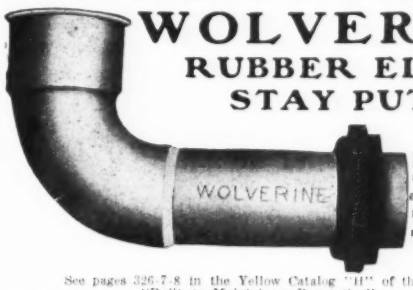


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THERE'S never any argument about whether a Johns-Manville Radiator Trap is properly adjusted or not. There's never any loss of time or profit in making adjustments, because there are no adjustments to make.
That's why contractors like it.
How it works
It's a hollow copper ball that does the work. As water flows into the trap, the ball rolls up, exposing the outlet, and water is discharged. Any air that may be present is also drawn off. But when the water level falls, the ball rolls down with it. Steam cannot pass the trap.
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New York City
10 Factories—Branches in 63 Large Cities
Through—
Asbestos
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showing a reduction of building of 1,549 residences in three years, stated that he didn't believe that it was that great in actual shortage. He said: "In a survey made in 1916 we had about 2,300 empty houses of one kind or another in Louisville. They are now filled up, and real estate is scarce." However, C. M. Phillips, of the Louisville Title Co., an active real estate man, member of the Board of Trade, and active in the "Buy A Home Movement," said: "Instead of being short 1,509 homes I would say that we are short closer to 5,000 homes The average real estate man doesn't consider desirable and undesirable property. Many people are now doubled up in homes, and others are living in very undesirable homes. In my connection with the Louisville Industrial Foundation I've found that we are blocked in bringing new industries to Louisville on account of not having housing faciilties, or even plant facilities. One concern would establish a plant employing 2,500 people in Louisville, and bring one-third of its men, if we could supply homes. There are several other big industrial concerns in the same fix. If we had the homes for 5,000 people we could fill them in short order."

In 1918 there were just 37 residences erected in Louisville. In order to catch up with back building, Louisville must erect five to six hundred extra houses each of the next three years in addition to her normal production of 800 to 900 homes.

At the present time the Kentucky High Cost Commission has a plan before the Louisville Board of Trade, similar to that taken up by the St. Louis Chamber of Commerce. St. Louis is erecting homes costing $2,000,000 to take care of her citizens. The Board of Trade at Louisville is requested to raise $1,000,000 either through the Louisville Industrial Foundation or by borrowing from the banks for the purpose of constructing three to five-room residences to be sold at a profit of ten per cent on investment in order to supply Louisville with needed housing facilities. Just what action will be taken in this matter is a problem.

The Board of Trade went to sleep last spring and summer in the matter of the "Buy Your Own Home Campaign." Many members of the building and allied trades were in favor of a big newspapers publicity and advertising campaign, but the matter was held up so long that it was finally decided that it was too late in the year to undertake such a project, and again labor was scarce and material high. During the early part of the year construction on the Federal cantonment. Camp Knox, drained labor supplies.

Prior to the war annual construction of all classes in Louisville ran to four or five million dollars, with some big years going over six millions. During the war period the $3,000,00 mark was never reached. Figuring up, the three abnormal or war years show general permits for 4,630 buildings, costing $7,072,646. During the preceding normal three years 7,131 permits costing $12,383,940, were issued, leaving a net loss of 2,501 permits, for $5,311,294. Again the $7,072,646 expended during the war period shows a considerable increase in dollars and cents, and would probably not have represented more than $5,000,000 expended in normal times, while many of the permits were for small repairs.

Frame work is more pronounced than brick work, the latter being held back by shortage of fancy face brick, which has been a blow to the building supply houses which have been unable to secure them.

Figures taken from three of the leading engineers and architect's offices show work of approximately $9,000,000

on their board, while there are many other engineers and architects who are busy. These men claim that much of the work that they have on their boards has been indefinitely postponed on account of the high cost of building.

There is a general shortage at this time of residence, store and industrial or commercial property of all kinds, and a big building movement of some sort is bound to come out sooner or later. Many building men claim that conditions are such that only necessary work will be undertaken in 1920, but necessary work will include many residences.

Thus from all indications there is going to be a good deal of plumbing and heating work in Louisville during the coming year. Some of it may be held up until 1921, but residence construction is imperative.

The same conditions are reported from almost every section of the country, and are relatively the same as in Louisville. A building boom figuring into billions of dollars is in sight for the country, and will have to be carried through in order to house a rapidly increasing population.

# Pennsylvania

### Pittsburgh and Vicinity.

A Pittsburgh building permit has been issued to Herman Koch for 14 brick-veneered houses of five rooms and bath each on Gearing Avenue, Eighteenth Ward, to cost a total of $49,000. This is the largest single permit taken out for dwellings in the city this year. The houses are to be built for rent or sale.

A permit has been issued to Herman A. Reich for nine seven-room brick-veneered houses on Beechwood Boulevard, near Forbes Street, to cost a total of $54,000.

A building permit will soon be issued to the Auto Trading Co. for a three-story auto display, sales and repair building to be erected on a plot of ground recently purchased for the purpose at a cost of $40,000. The building will be an addition to Baum Boulevard, Bellefield district.

Bids are being received for a church at Woodlawn, owner All Saints Episcopal Church, approximate cost $30,000. Architects Carlisle & Sharrer made the plans.

Tremendous enthusiasm is being shown in the membership campaign recently inaugurated by the Builders' Exchange which is about to close. Reports are expected to show a large increase, with some wonderful records by the working teams. Secretary E. M. Tate says the campaign has been a great success, and will undoubtedly add largely to the usefulness and efficiency of the organization here.

### Philadelphia and Vicinity.

M. Leypold, 2822 North Nineteenth Street, Philadelphia, has secured the contract for the installation of modern plumbing in a bungalow, which is being erected in Elkins Park, for C. A. Spalding.

The contract for the installation of plumbing in the new Engineering Building at the Swarthmore College, Swarthmore, has been awarded to Wm. Newell, 1707 Sansom Street, Philadelphia. Baker, Smith & Co., Philadelphia, secured the contract for the installation of a heating system in this building; consideration $50,000.

Flynn & Love have been awarded the contract for the installation of plumbing and heating in the new Granger Stable which is being erected for Colonel D. Wentz, Wyncote, at a cost of $10,000.

**WILHELMI and MODERN Copper Range Boilers**

Unexcelled in design, material and workmanship.

Interior thoroughly tinned.

No iron used in construction.

Guaranteed against collapse.

Always satisfactory. You can safely install them on your best jobs.

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FOR lasting quality and true capacity use "KOVEN" Pure Iron, Double Row Riveted, Galvanized Range Boilers, or NACO Galvanized Range Boilers made of open hearth steel. These boilers may be bought of jobbers everywhere.

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You can provide real home comfort for your customers, as well as economical heat, by installing the

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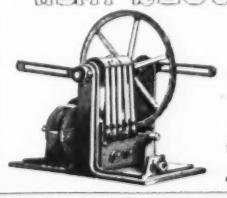

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Operated by electricity. No weights, springs or batteries.

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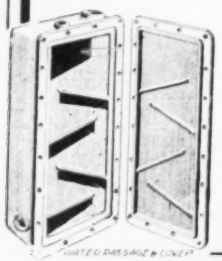
is the kind of heater that is going to bring you business and the kind you want to sell. Such a one is the SHARP'S CLEANOUT WATER HEATER. Its cleanout feature eliminates a big expense and the small amount of fuel used is another item of economy. These two things combined with its other superior points make the Sharp's a ready seller everywhere.



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**Cistern and Riveted Pressure Boilers**
can be described in one word—
**Everlasting**

They not only *last* but give continuous satisfactory service.

Made in any size, pressure or capacity desired.

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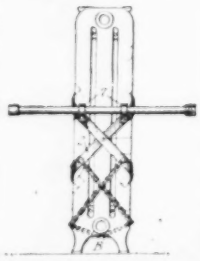

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Satisfied users say they are the biggest labor saving devices ever invented.

Patented and Manufactured by
THE F. R. LUMSDEN CO.
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**$15.00 Per Set**

**M.-V. B.**

Closet Tank fittings are not the cheapest and are used by Manufacturers who want the best.

**LOOK IN THE TANK**

Ballcocks, Flush Valves, Hinges, Flush Levers, Etc.

**Morency-Van Buren Mfg. Co.**
Sturgis - - Michigan

Jos. E. Young, Lansdowne, has secured the plumbing contract on the parsonage which is being built for the Trinity M. E. Church.

The plumbing and heating contract on the residence which is being erected for Dr. B. A. Thomas, Swarthmore, has been awarded to Wayne Plumbing & Heating Co., of Wayne.

# New York

Alfred J. Papin has taken over the business of Mr. Burns in Ogdensburg and is doing well. He is at present installing the steam-heating system in the Oswegatchia House.

E. Dawson, Watertown, will install the plumbing in Mr. McFadden's residence.

Hall & Bushnell, Carthage, have secured the contract for the plumbing in the new garage. They recently completed the installation of a heating system for Charles Slack.

The Estate of M. Carney, plumbing and heating engineers, Philmont, reports an abundance of plumbing and heating contracts. The company is now busy on the new $100,000 Columbia County Tuberculosis Hospital and installing a hot water heating system in the fine residence of the Hon. J. G. Curtiss at Harlenville. Plumbing, heating and pneumatic water supply systems are being installed in the residence of Capt. E. L. Harder at Claverack. In this city an extensive steam heating system has been installed in the Home of Crippled Children, and operations will shortly be started on the laying of a mile of 6-inch water main connecting the city of Hudson water works system to this institution. William E. Carney, manager of the company, though busy with his professional calling, is also active in local business circles. During the war he was chairman of the Four-Minute Men, a subchairman on all loan drives, and recently acted as chairman of the committee which received soldiers on their home-coming. He is now treasurer of the Columbia County Home Defense Committee.

Wm. E. Carney.

# Florida

Building operations in St. Petersburg will continue to be active during the fall and winter, although hindered considerably by lack of labor. Permits for new buildings during the month of September totalled $169,335.

The Kibler Hotel, in Lakeland, which was erected in 1913 at a cost of $300,000, is to be enlarged at once. The plumbing will be overhauled and many new fixtures will be installed.

Marks & Sheftail, architects, of Jacksonville, are preparing plans for enlarged school buildings in Hastings.

The total amount for building permits issued in Jacksonville for September was $377,380.50, a gain of $100,000 over the month of August.

# Massachusetts

### Boston and Vicinity.

The directors of the Massachusetts State Association of Master Plumbers are planning a membership drive which will be pushed vigorously in every section of the Commonwealth. A special meeting of the directors was held this week to lay out a definite campaign program. President Sullivan is giving a great deal of time to association work and hopes to visit a majority of the local associations at one time or another during the winter, or if not able to attend personally to be represented by some member of the board. At the monthly meeting of the board last week nine new members were voted in, and encouraging reports were received from Taunton and Brookline where new associations recently have been formed. It also was reported that a new local was in the making in Somerville.

A. Frank Bonney is president of the new Brookline Master Plumbers' Association, which now has 19 members representing all but three or four of the plumbing firms in the town. Frank B. Connor is vice-president and Russell Gowdy secretary and treasurer. The first meeting of the fall season was held on October 8th with a good attendance and with indications of much interest in the organization. Brookline has never before had a master plumber's association although some of the town's masters have been and still are members of the Master Plumbers' Association of Boston and Vicinity. It was felt, however, President Bonney said, that it would be good for all if the plumbers of the town could get together and pull together for the good of the craft. The present officers will hold office until next May.

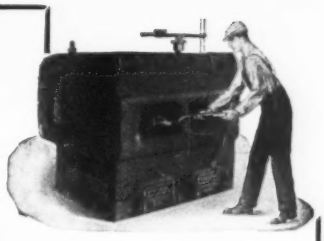
Frank A. Merrill, president of the Heating and Piping Contractors' Boston Association, was a guest and speaker at the first dinner of the season of the Master Plumbers' Association of Boston and Vicinity, held at the United States Hotel on the evening of October 14th. President E. W. Cox was in the chair, and after the excellent repast had been disposed of and cigars lighted, he called upon Mr. Merrill, who spoke interestingly of the work of the Heating and Piping Contractors' Association, both local and national, and dwelt upon the value of close co-operation in the building trades.

The master plumbers elected two new members and received a third application which will be acted upon at the next meeting. President Cox announced the appointment of David Craig, Daniel G. Finnerty and Daniel Shannon as a committee to draw up resolutions on the death on October 6th of J. Warren French, a past president and honorary member of the association. This committee with the addition of Edward C. Kelly represented the association at Mr. French's funeral.

Members of the Portland (Me.) Stove Dealers' Association came to Boston on October 2nd and were entertained at the Boston City Club by the New England Repair Association. After dinner at the club at 6:30, the company attended a theatrical performance and then returned to the club for an exciting bowling match which lasted until a late hour. President Wheeler of the Portland association, the well known master plumber, expressed the sentiments of his fellow members when he said: "When it comes to entertaining the Boston people know how to do it."

Somerville has had a master plumbers' association in the


**Heat Hints**



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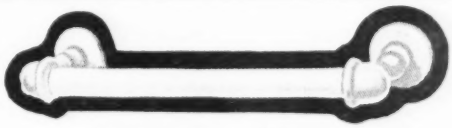

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The cut shown here represents one of our beautiful special design bath room fittings—porcelain enamel on cast iron. An everlasting finish.

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*SHIP US YOUR SCRAP METALS*

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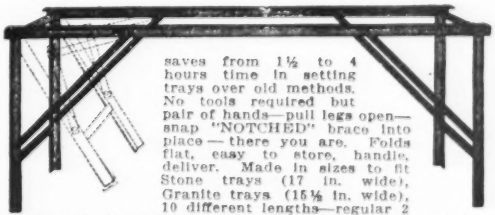
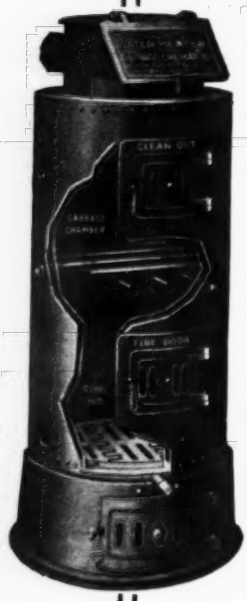
**CHICAGO, ILL.**

**The "JIFFY" Folding Laundry Tray Frame**



saves from 1½ to 4 hours time in setting trays over old methods. No tools required but pair of hands—pull legs open—snap "NOTCHED" brace into place—there you are. Folds flat, easy to store, handle, deliver. Made in sizes to fit Stone trays (17 in. wide), Granite trays (15½ in. wide), 10 different lengths—regular 2 and 3 part—6 special lengths. Send for catalog and tell your jobber size wanted.

**THE FORD DONLEY CO.**
1940 East 117th St. Cleveland, Ohio



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**Water Heater and Garbage Burner**

***Cuts Down Hot Water Costs***

makes fuel of garbage and saves expense of hauling it away. These are convincing talking points for the plumber that are sure to interest the building owner.

WILKS Garbage Burners are designed to produce greatest efficiency. Garbage grate forms a part of the heating surface and there is constant circulation of water through tubes which prevents their being injured by heat.

Garbage chamber and fire pot are wide and deep with large and convenient doors. Will burn any kind of soft coal successfully.

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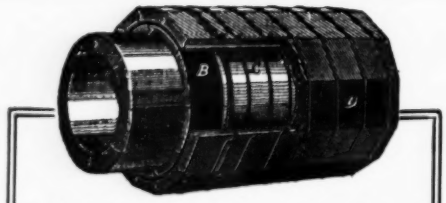

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**The Dead Air Space Gives Perfect Insulation**

Wyckoff's Improved Cypress Steam Pipe Covering has a ¼" dead air space between the two cypress shells, giving it a total thickness of 3¼ inches.

Cypress defies decay—is not affected by soil conditions, water or steam or the alternate wet and dry, hot and cold conditions always found in steam conduits. Each shell is wound under high tension with heavy galvanized steel wire. Coated with Hydrolene B—the best water proofing known—and rolled in sawdust.

Write for details.

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past but interest in it has died down in recent years. A few years ago under the leadership of the late Edwin Connell the association flourished, and many of those who were prominent in the organization at that time are said to be interested in the movement for rejuvenation. Officers of the state association plan to assist the Somerville masters in getting started once again.

## Tennessee

L. V. Eberle has returned from military service and is again at work as department superintendent for N. O. Nelson Mfg. Co., Lauerdale and Madison Streets, Memphis.

The Southern Heating Co., Second Street, Memphis, is installing the heating system in the business houses on South Main Street, for the Johnston Furniture Co.

J. P. Massa & Son have moved their plumbing establishment from Pototoc Street to Vance Avenue, near Second Street, in Memphis.

Mr. Heisler, of Mee & Heisler, Rayburn Avenue, Memphis, is now active head of the Master Plumbers' Association. Meetings are held weekly with good attendance.

The Wilhelm Plumbing Co., Monroe Avenue, Memphis, has secured the contract for the installation of plumbing in the addition to the newspaper plant of the Memphis Press Building on Jefferson Avenue. The contract calls for showers, baths, toilets, lavatories, wash sinks, all water pipes to press, etc., with the most modern devices used in printing establishments. This firm is also doing the plumbing work in the extract plant of Witsell Bros., North Second Street, which is being equipped with the latest apparatus for filling bottles and keeping them in perfect sanitary condition.

## California

**San Francisco and Vicinity.**

In spite of strikes both in this city and in Oakland, building is going ahead full force. In addition to a large number of recently closed contracts, plans are under way for many more projects including all types of structures. An unusual number of residences of the bungalow type, to cost in the neighborhood of $3,500, are planned for immediate construction in the residental sections of the city, as well as apartment houses and flats in the more closely populated districts.

E. Zinkland & Son have been awarded the contract for the construction of the first unit of the building for the St. Joseph's Hospital of this city, at an approximate cost of $50,000.

E. Blackenburg is preparing plans for a three-story apartment house for the Western Addition, to be built at a cost of about $40,000. A similar type of structure will be erected in Pine Street, west of Stockton Street, from plans drawn by Architect J. F. Haldik, containing twenty-three apartments and costing about $30,000.

Another apartment house is planned for the Stockton Street district, plans having been drawn by Architect E. E. Young for a five-story and basement brick building to be erected at an estimated cost of $55,000.

Architect B. J. McDougall is preparing plans for a $20,000 residence to be erected at Concord, Cal., for Mrs. George W. McNear. High grade plumbing and heating systems will be installed.

## THE PROVINCE OF ONTARIO.

### Toronto and Vicinity.

C. Bragg, 567 Yonge Street, Toronto, who has been engaged in the plumbing and heating business for 45 years, reports an active year in remodeling plumbing systems in city and suburban residences.

John W. Oram Co., 836 Yonge Street, Toronto, are very busy installing plumbing and heating systems in factories, residences and apartments in the city and vicinity.

Adamson & Dobbin, of Peterborough, were successful in securing the contracts for the installation of plumbing and heating for the Canadian Packers plant, the Dominion Bank building and the Court House building.

The Morrison Plumbing Co., of Lindsay, reports an increase in the installation of modern bathroom fixtures in city and country homes. The company enlarged its attractive showroom of plumbing accessories recently.

Miles MacDonald, sales manager of the Lord & Burnham Co., Ltd., of Toronto, was recently host at a luncheon for several contractors in the plumbing and heating fraternity.

H. S. Brown, Brockville, has the contracts for the installation of plumbing in the Frank Wiser property and the home of Jas. Cuyhan at Athens, also in five residences for the Brockville House Building Co. He will install modern heating systems in the McArthur Belting Co.'s plant, the National Mfg. Co.'s factory, and in the Jas. Shorey Glove Works, the General Hospital, and in Doctor Clark's two new greenhouses.

Herbert Morrison, of Lindsay, will install plumbing and heating systems in the Benson Hotel, the Thomas Garage, the Arnold Garage, and in twenty-five residences for O'Connor & O'Reilly.

Plumbing and heating contracts for the J. A. Johnson apartments, the A. W. McLaren property and the M. T. Hillman residence were awarded to George Rothwell, of Brockville.

Hall & Devine, 12 Buell Street, Brockville, have the contracts for the installation of modern heating systems in Notre Dame Convent, St. Francis Xavier Church and in nine residences in the city and vicinity.

Garn E. Dobbs, Belleville, has again taken over his plumbing business after four years' overseas service.

R. G. Sturgeon & Co., of Peterborough, have been awarded the contracts for the plumbing and heating in the Auburn Woolen Mills, the Peterborough Canoe Company's plant, Goodyear Rubber Company's plant, the Queen Mary School and the King George School.

F. R. J. MacPhearson, of Peterborough, has secured the contracts for the installation of plumbing and heating in seventeen residences in Peterborough. He will install plumbing and heating in the Sacred Heart Church at Wolfe Island, the Queen Hotel at Port Arthur, St. Mary's-On-The-Lake Orphanage at Kingston, St. Mary's Academy at Belleville, and in Regiopoles College at Kingston.

The plumbing and heating contracts for the R. Mill store building and St. Paul Church have been secured by A. W. Archibald of Peterborough. He also has contracts for the installation of plumbing and heating in twenty residences in the immediate neighborhood.

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PLUMBERS EVERYWHERE
are recognizing the
HIGH STANDARD OF THE
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DOMESTIC WATER SUPPLY SYSTEMS

FRESH WATER SUPPLY SYSTEMS

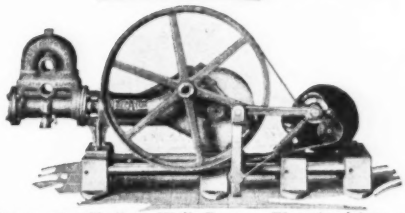

Figure 86. Shallow Well Pump. Electric drive; motor is mounted on adjustable sub-base—20 in. pulley.

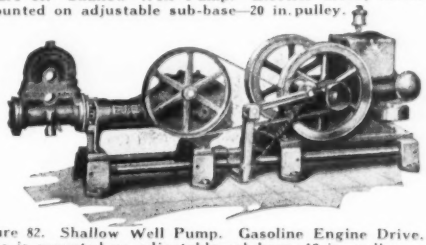

Figure 82. Shallow Well Pump. Gasoline Engine Drive. Engine is mounted on adjustable sub-base—12 in. pulley.

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***Complete Outfits Include Tank and Connections***

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*DEEP AND SHALLOW WELL PUMPS*
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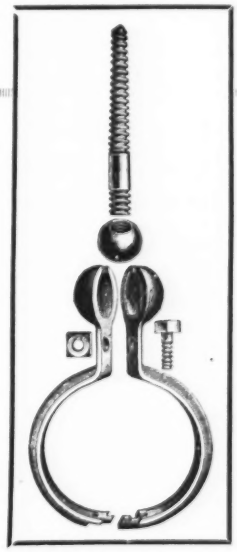
**Hanna "Ball Joint" Pipe Hanger**



**Strongest Made Saves Time and Labor**

Constructed of the best and heaviest material. Malleable iron.
Can swing in any direction.
Pipe can be raised or lowered without removing hanger.
Write for "Our Silent Salesman"

**THE PENN ENGINEERING CO.**
**PHILADELPHIA, PA.**

Install a **Paul Money Maker Demonstrator** in your show window and watch the crowds gather.

It is a complete water system which you may demonstrate to your customers under actual service conditions.

Write us for full particulars.

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1712 Harrison St. FORT WAYNE, IND.

**The HULL Quick Acting PIPE VISE**

75% quicker in adjustment than any other pipe vise on earth.

It is all in the sleeve and lock ring.

Positive action. Made for hard service. Protected by patent.

Sizes from ⅛ in. to 8 in.

Ask your jobber, or write

**Columbus Machine Works**
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**Made For Plumbers**
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**Parrott Automatic Gas Water Heaters**

Our policy is to sell the Parrott Heater exclusively through the plumbers on a basis that nets them profit above overhead costs.

Write for our co-operative sales plan. It will interest you.

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HEAVY COVERING ASSURES LIFE-LONG SERVICE — ACID-PROOF — IMPERVIOUS — STANDS ABUSE LIKE A BOWLING BALL — CONCEALED HINGES — INDISPUTABLE QUALITY

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THE BRUNSWICK-BALKE-COLLENDER CO.
623 SO. WABASH AVE. CHICAGO

C. Williscraft, Smith's Falls, will install the plumbing and heating in the implement plant and offices of Frost & Wood Co., Ltd.

A. Hagan, Smith's Falls, has secured contracts for the installation and remodeling of the plumbing systems in a number of apartments and residences in that city.

### Ottawa.

A large part of the heating and plumbing trade in this district just now is abnormal, through the prevalence of turning dwelling houses into apartments to meet the great scarcity of houses. Practically every apartment that can be built is immediately rented and there is consequently a marked tendency to convert residences into apartments—a change which of course necessitates considerable changes in the plumbing and heating systems.

Two contracts for heating systems in public buildings are being carried out by J. R. McLennan, one a job of approximately $32,000 in the new Creighton Street School and the other in a new Orange Hall to replace the building brought by the Government for razing, to make way for a new Departmental Block. Business with this establishment is reported fairly busy.

Strong hope for more settled conditions leading to greater activity when the building season opens next spring is expressed by M. M. O'Connell, who describes trade as about normal. No great difficulty is being experienced in securing materials.

Repairs are reported active by Ernest Glaude, who states that while the trade is of course not nearly as active as in the year preceding the war, yet it is fairly good, particularly the usual Fall rush of heating jobs.

An increase in heating jobs, which clearly surpassed the fall trade of last year, is reported by J. P. Band, in both new work and repairs.

## THE PROVINCE OF QUEBEC.

### Montreal and Vicinity.

Armand Thibeault, 276 Antoine Street, Montreal, has added a plumbing and heating department to his establishment and reports having secured a number of good contracts for plumbing jobs in residences.

John Colford, of Montreal, has been awarded the plumbing and heating contracts on the Borden's Milk Co.'s plant, the Mechanics' Institution, the Hospital for Incurables in Montreal, and in the Y. W. C. A. at Shawengan Falls, Que.

Whyte & Delaney, of Montreal, have secured the plumbing and heating contract on the new Presbyterian church at Westmount, the Desjärdin Apartments and seven residences in Montreal.

A. Prud Homme & Fils, Ltd., Montreal, have recently enlarged their plumbing and heating department. Mr. H. Prud Homme is general manager.

J. J. Briard, Montreal, has been awarded the plumbing and heating contracts on the Cathedral and the Bishop's Palace at Sherbrooke, the new addition to St. Charles Baromme Seminary at Sherbrook, LaSalle School in Montreal and in the Racine Garage also in Montreal.

August Brunette, Montreal, is remodeling the plumbing and heating systems in many business and apartment properties in the city and country.

J. E. Hardy, Montreal, has secured the contract for plumbing and heating in the Marie Immaculate School, the Berri School, the Priest's Home and Presbytery at St. Edward, the P. J. Legard Co.'s garage and the Rosemount College.

## NOTES ON THE PRINCIPLES, TYPES AND INSTALLATION OF VACUUM CLEANING.

(Continued from Page 166.)

pull the nap from the pile of the carpet, but with the suction commonly employed at the present time there is but little danger of this, and its limitations are chiefly those due to the narrowness of the slot. The next step was to increase the width of both slot and bearing surfaces. This of course increased the volume of air handled under a given vacuum and therefore increased the power accordingly. While this form of tool made it possible to pick up much coarser litter and was less destructive to the carpet, it pushed hard and was not as rapid a cleaner as the narrow-lipped type. A later development which seemed to overcome the objections of the latter to a large extent has a slot 10 inches in length with a uniform width of ¾-inch. A

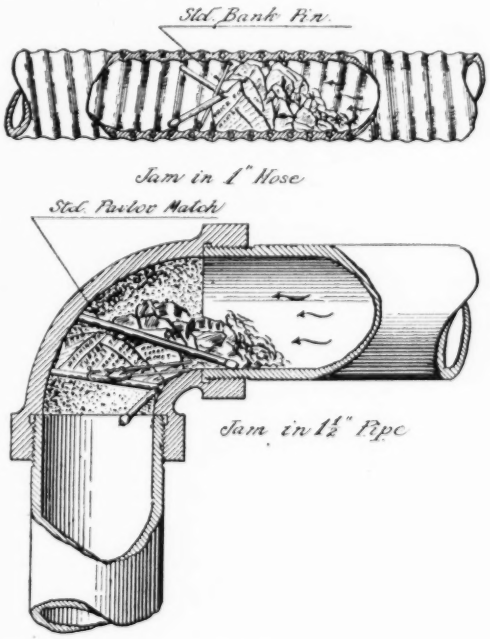


Fig. 16.

modification of this has a slot 15 inches in length, with a width of ¼-inch at the ends increasing to ¾-inch at the center. This type is especially adapted to public buildings where matches, cigar stubs, pieces of paper, etc, are likely to be found mixed with the other dirt.

In addition to the standard forms there are many special tools for various purposes.

### Capacity and Power Requirements.

The number of sweepers which it is necessary to install depends partly upon the size of the building, the kind of floor covering, and the time allowed for cleaning. A fair average for carpeted floors is 2,000 square feet per hour per operator; but if the space is divided up into small rooms, as in a hotel, this figure should be reduced to 1,500 sq. ft. at the most.

Bare floors are cleaned more rapidly, and 3,500 sq. ft. per hour per operator may be taken as a fair average, with 5,000 as a maximum for rapid work. The available time for cleaning will vary in different buildings from 2 or 3 hours in school buildings up to 10 hours in office buildings.

After the riser layout has been made, the number of

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The Excelso Heater is a simple one-piece casting. Cannot get out of order. Will last a lifetime.

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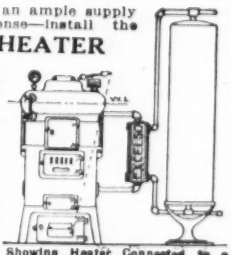


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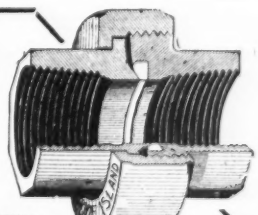


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The best is cheapest in the end—use the

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**Plumbers' Adjustable**
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Lavatory
Bath
Sink
Etc.

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**HOFFMANN & BILLINGS MFG. CO.**
MILWAUKEE

outlets and necessary sweeping force can be estimated for the type of building and other local conditions. The maximum number of sweepers to be in use at one time of course, fixes the capacity of the machine to be installed and the power required. United States Government buildings have had vacuum cleaning apparatus installed on the following basis:

| Number of Sweepers in Plant. | Kilowatts per Sweeper. |
|---|---|
| 1 | 4 |
| 2 | 3.75 |
| 3 to 4 | 3.50 |
| 6 to 8 | 3.33 |

The power per sweeper will of course vary with the vacuum carried, the kind of tool used, the length and size of piping, efficiency of exhauster, etc. Capacity tests made under the direction of the United States Government have led to the following requirements in their specifications:

| Floor Area, Including Basement. | Number of Sweepers in Plant Capacity. |
|---|---|
| 51,000 to 100,000 sq. ft. | 2 |
| 101,000 to 150,000 sq. ft. | 3 |
| 151,000 to 250,000 sq. ft. | 4 |
| 251,000 to 400,000 sq. ft. | 6 |

The tests upon which these figures are based were made with hose lines 100 ft. long, equal in number to the plant capacity, with ends open to atmosphere. With these data the power of motor can be determined for any given case. When steam jet exhausters are employed, from 200 to 250 pounds of steam should be allowed per sweeper per hour.

For approximations we may assume from 2.5 to 3 brake horsepower per sweeper for plants ranging from 4 to 8 units, the larger figure applying to the cleaning of bare floors, where the volume of air handled is at a maximum. In the case of motor-driven machines, the power required at the main generator engine will run from 3.6 to 4.3. I. h. p. per sweeper, assuming the combined efficiency of engine, generator and motor to be 70 per cent. These may be taken as 4 and 5 I. h. p. respectively when making ordinary estimates, which are on the side of safety.

Knowing the indicated horsepower of the generator engine and its approximate water rate, the boiler power is easily estimated by allowing 30 pounds of steam per horsepower per hour.

## LATE NEWS FROM MASSACHUSETTS.

### Springfield and Vicinity.

Becker Bros., 73 Ferry Street, Springfield, were successful in securing the contract for the installation of the plumbing in the Glaze Paper Co. plant; the plumbing and heating in two stores for B. Green on Dickinson Street, and two tenements and two stores for J. Judleson on Walnut Street.

John J. Carney, of Adams, will remodel the plumbing equipment in the residence of G. T. Thompson and has the contract for the installation of the plumbing in five cottages in the city.

Elmer G. Wellman, a plumbing and heating contractor at Belmont Avenue and Beaumont Street, Springfield, has announced his candidacy for the republican nomination for city councilman in his city. It will be Mr. Wellman's first venture into the mysteries of politics except for a term as member of the city committee of his party.

Walter E. Foss, a member of the plumbing firm of Foss & Jones of Pasadena, Calif., is visiting in Haverhill. Mr. Foss learned his trade with John T. Hill of Haverhill when the latter was in the plumbing business with his brother at Pittsfield, N. H. After completing his apprenticeship Mr. Foss engaged in the plumbing business in Pittsfield for a time, and 15 years ago removed to California.

### Pittsfield and Vicinity.

Nolan & Herbert, of Pittsfield, are completing the installation of the plumbing and heating in a thirty-eight apartment building, which included fifty-four modern bathrooms. They will install the plumbing and heating in two new stores and one tenement for Gerry Hart and in the residences of Wm. Egan and J. Denny.

Jas. Hickey & Co., 33 Bradford Street, Pittsfield, are very busy remodeling the plumbing in residences and stores in Pittsfield in addition to considerable new work.

The contracts for the installation of heating and plumbing in two bungalows which are being built by F. C. Hall have been awarded to H. L. Doran & Co., of Pittsfield, who will also install the plumbing and heating in six other new residences in the city.

John H. Rettalick, of Pittsfield, is installing plumbing systems in four mills in the city and has the contract for the installation of plumbing and heating on the Berkshire Industrial Farm at Canaan, N. Y., and in the Van Sickler Building in Pittsfield.

F. Farwell & Co., Pittsfield, have been awarded the contracts for the installation of plumbing and heating in the large new public garage at Dalton, Mass., and in twelve new residences in Pittsfield.

The Standard Steam Supply Co., Pittsfield, will install the heating and sprinkling systems in the manufacturing plants of the B. D. Rising Paper Co., Housatonic, Mass., and the Eaton Dikeman Paper Co., at Lee, Mass., and also in three store buildings for Harrison & Co., in Pittsfield.

The plumbing for the three bungalows, erected by N. Plantier, will be installed by E. W. Malloy, of Pittsfield. He will also install the plumbing in the residence of Mrs. Wright on West State Street, the Polish Church on Linden Street, and in the residence of Frank Ruden at Dalton, Mass.

Wm. H. Shedd, 76 Plunkett Street, Pittsfield, will install plumbing and heating systems in the music hall at South Mountain Musical Colony.

Ford & Parker, Dalton, have recently secured the contract for the installation of five modern bathrooms for Crane Co., paper manufacturers and also have seven fine heating jobs.

Morrissey Bros., Indian Orchard, report they have had an exceptionally busy season, doing much remodeling work.

S. W. Lyon & Co., Main Street, Palmer, were awarded the $10,000 contract for the installation of plumbing in the new addition to the Warren Cotton Mills, West Warren. They will also install the plumbing and heating in five new residences at Stafford Springs.

### North Adams.

D. Delisle, 75 Union Street, North Adams, reports an exceptionally busy season, installing the plumbing in six residences in North Adams and two hot water heating systems in addition to much remodeling and repair work.

Albert Shields, of the firm of Shields & Henry, 41 Summer Street, North Adams, has purchased his partner's interest and is now conducting the business on his own account. He recently secured the contract for the installation of the plumbing and heating in two new residences on Windsor Terrace, and is remodeling the heating system in the Williams Block.

Porter & Hatfield, 32 Eagle Street, North Adams, will install a steam heating system in the Hoosac Worsted Mills and the plumbing and steam heating in the Strong & Huetts Woolen Mills. They also have the contract for the piping and engineering at the gas plant and for the equipment of twelve modern bathrooms in this city and vicinity.

John B. Price, 75 Holden Street, North Adams, has secured the contract for the installation of ten heating systems and the plumbing in three residences in the city.

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**Saves** Fuel Labor

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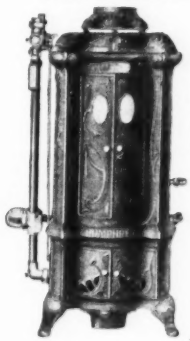
**A Household Word**



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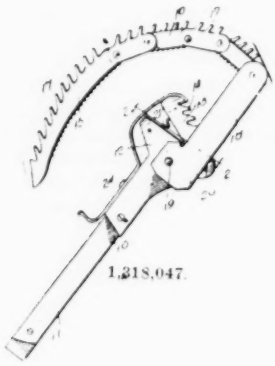
# Patents

## Heating Department.

1,318,047. Pipe Wrench. William Louis Bessolo, San Diego, Cal. A wrench comprising a shank having a handle at one end and an enlarged head at its opposite end, a catch member extending transversely of the head and provided with an outer toothed surface, a pair of spaced side links pivotally connected at their inner ends to one side of the said headed shank, and a flexible jaw pivotally connected to the outer ends of the said links, said jaw including a plurality of flexibility connected sections having inner toothed gripping surfaces and provided along their outer surfaces with teeth for engagement with the teeth of the catch member, said catch member being pivotally connected at one end to the shank head, a spring upon which the opposite end of the catch member bears, and an adjusting member mounted on the shank and engaging the free end of the catch member, said adjusting member being shiftable longitudinally of the shank to withdraw the catch member from engaged position.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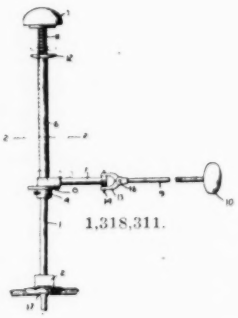
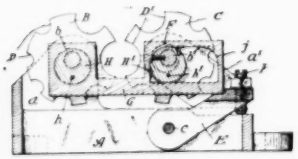

1,318,311.

1,318,068. Valve Grinder. Harry H. Blanchard, Boston, Mass. In a valve grinder, the combination with a rod having valve engaging means at its lower end, of a handle swiveled to the upper end of the rod, a collar fast on the rod and having a plurality of apertures, a sleeve loosely mounted on the rod, an arm extending laterally from the sleeve and provided with a pin to enter one of said apertures in said collar, and an actuating rod swiveled to the end of the arm.

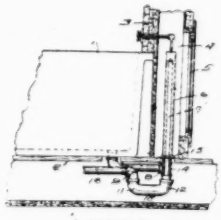

1,318,057.

1,318,057. Pipe Vise. Mark Dean, Boonville, N. Y. A pipe vise which comprises a pair of revoluble cylinders having peripheral gripping depressions of various sizes, a yoke whereby one of said revoluble cylinders may be moved toward and from the other cylinder, and means for causing a depression of one of said cylinders to register with the corresponding depression of the other cylinder to grasp and hold the pipe to be treated.

## Plumbing Department.

1,317,797. Universal Bathtub Trap. William Langdon, Toledo, Ohio. A bath tub trap having three arms of substantially the same length and arranged to form a Y and having upturned ends, the axes of the arms located in substantially the same plane, the diameter of the arms and ends being substantially the same throughout, the end of the trunk of the Y forming the outlet and the ends of the branches of the Y forming the inlet and cleanout of the trap.

1,317,735. Solderless Pipe Joint. Bernard H. Skelly, Bridgeport, Conn. A solderless joint for securing flexible tubes to fixtures, comprising a flexible tube, a hollow fixture having a mouth with a long bevel, a soft metal tubular sleeve-like structure surrounding said tube and having a tapered outer surface fitting within said beveled mouth, and a clamping nut driven on said fixture against said structure, whereby the latter will be firmly crushed against said tube and anchored thereto.



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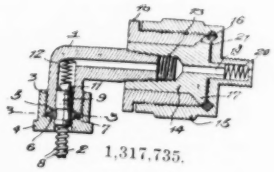
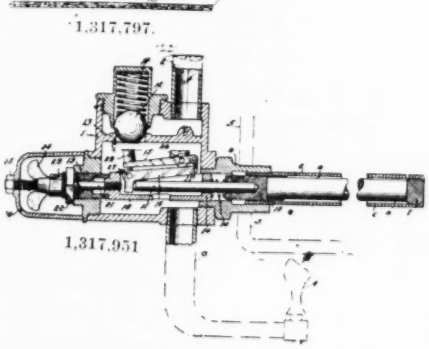


1,317,735.



1,317,951.

1,318,329.

1,317,951. Thermostatic Controlling Mechanism for Water Heaters. Charles A. Backstrom, Crafton, Pa., assignor to Pittsburgh Water Heater Co., Pittsburgh, Pa., a corporation of New Jersey. In combination in a heater having a water container and a gas burner, a gas supply conduit, a valve in the conduit, a thermostat, a multiplying device having its last element which operates the valve movable with the expansion and contraction of the thermostat parts and at a speed having a fixed ratio to that of said thermostat parts at all times, such element being arranged to move the valve in opening it to an extent greater than that necessary to give a capacity equal to that of the conduit, the valve being moved only during the latter part of the movement of the thermostatically controlled multiplying device, and being arranged, on its reverse movement, to effect no throttling of the gas during the first part of such reverse movement.

1,318,329. Show Bath Stall. Louis F. Eisele, Philadelphia, Pa., a door including a frame in which the lower horizontal portion and upright joining portions are made of channels, each of said portions having a filling strip extending in the direction of its length and spanning the distance between the inner surfaces of its sides, said filling strips being set in beyond the inner edges of said sides; and a panel having edge portions fitting in the space between said surfaces and edge portions fitting in the space between said surfaces and between said inner edges and the adjacent surfaces of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PUTS AIR TO WORK

**B. F. STURTEVANT CO., Hyde Park, Boston, Mass.**

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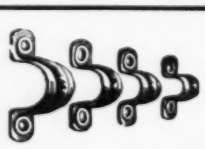

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Scientific construction makes these straps stronger, lighter, better in appearance.—MORE PIECES TO THE POUND—Consequently lower in price.

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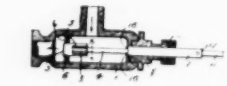
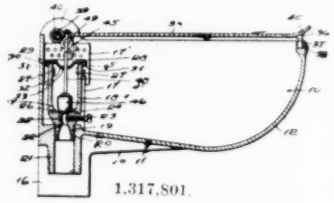
**Standard Sanitary Mfg. Co., Pittsburgh**

said filling strips, said frame also including a top portion having a detachable outer side section, said section including a portion forming an abutment for the upper edge of said panel whereby when said detachable section is removed the panel can be slid upwardly out of said frame, substantially as described.

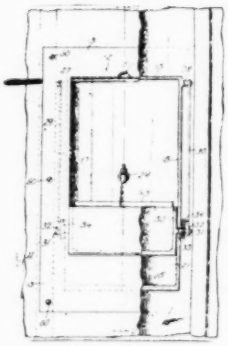
1,317,785. Automatic Gas Control for Gas Water Heaters. Paul H. Hamilton, Fort Worth, Tex., assignor, by mesne assignments, to Esda Manufacturing Co., Wilmington, Del., a corporation of Delaware. In an automatic control of the character specified, in combination, a casing provided with an inlet and an outlet, a relatively short restricted passageway between said inlet and outlet to permit access of fluid from said inlet to said outlet at all times, a controller mounted for movement through said passageway and accessible to fluid in said inlet and outlet portions, said controller being provided with grooves extending from the inlet toward the outlet end thereof and terminating short of the outlet end, walls of said grooves comprising a fluid pressure area on the side of the plug of differential cross-sectional area so that when water is flowing through said passageway the controller tends to move to a balanced position, and means operatable by movement of said controller for the purpose specified.



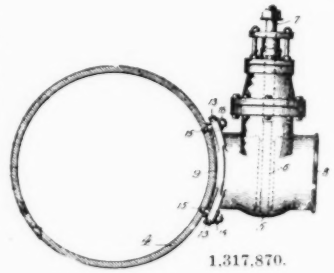
1,317,785.



1,317,801.



1,317,829.



1,317,870.

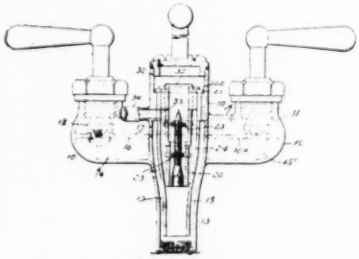
1,317,801. Drinking Apparatus. John Minor Botts Lewis, Lynchburg, Va., assignor to Livestock Individual Drinking Fountain Co., Inc., Lynchburg, Va., a corporation of Virginia. In apparatus of the character described, the combination with a drinking receptacle, of an upstanding inlet conduit arranged within the drinking receptacle and attached to its bottom, a coupling carried by said bottom and leading into the inlet conduit and having one end thereof extending to the exterior of said bottom for connection with a water supply pipe, a valve arranged within the inlet conduit to control the passage of the water therethrough, a valve for controlling the discharge of water from the drinking receptacle, a movable cover to normally close the upper end of the drinking receptacle, and means connecting the valves with the cover.

1,317,829. Folding Sink, Basin and the Like. Jacob L. Shroyer, Oak Park, Ill., assignor of one-half to Charles O. Hard, Kansas City, Mo. A folding sink or basin structure, having in combination a rectangular frame provided with a rear wall; a water receptacle having its edges bounding its opening in substantial contact with the inner surface of the rear wall of the frame when folded in the frame and its end walls in contact therewith when folded out, to econo-

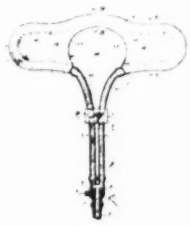
mize space and a bodily movable support providing a hinge member for hinging the receptacle to the frame to permit bodily movement thereof outwardly of the frame during the folding and unfolding operation.

1,317,870. Tap Connection for Mains. John F. Fanselow, Chicago, Ill. In a tap connection for a main, the combination of a valve casing having one of its ends curved to conform substantially to the periphery of the casing, perforated lugs adjacent the curved end and on the casing and bolts extending through said lugs and adapted to clamp the casing directly onto the main, said bolts and lugs constituting the sole clamping means for securing the casing to the main.

1,318,204. Bathtub Cock. Edward R. Hangliter, Washington, D. C., as a new article of manufacture, a water cock having a direct and an indirect passage for the water, a vacuum producing nozzle, constituting a part of said indirect passage and a valve for each of said passages.

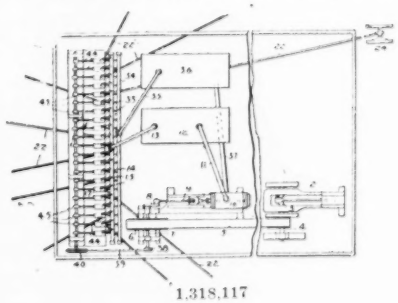


1,318,204.



1,318,172.

1,318,117. Pumping System. Andrew M. Stewart, Toledo, Ohio, assignor to the National Supply Co., Toledo, Ohio, a corporation of Ohio. In a system for pumping a plurality of wells, a plurality of pumps, a prime mover therefor, a fluid-operated motor for each pump, a pressure pump for the motive fluid, a distributing main connected to the delivery side of the pressure pump, a distributing valve for each



1,318,117

motor operated by the prime mover, a branch pipe connecting each valve with the distributing main, a pipe connecting each valve to its individual motor, a pipe having connection with each valve and the inlet side of the pressure pump, means in each valve for connecting the pipe leading to its motor alternately to the pipe leading to the motor supply pipe and to the pipe leading to the inlet side of the pressure pump, and means for operating the first means.

---

Building operations in Boston for September showed big gains over the same month a year ago, according to the records of the city building department. Applications of 114 building permits, calling for an expenditure of $1,273,157 were passed upon by the department during the month as against 47 permits, representing $202,205, in September of last year. Total building operations in the city for the first nine months of 1919 are considerably more than twice what they were for 1918.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SOOT DESTROYER

Will destroy Soot or Soot Scale.

Will make old boilers steam like new.

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WILL SAVE FUEL.

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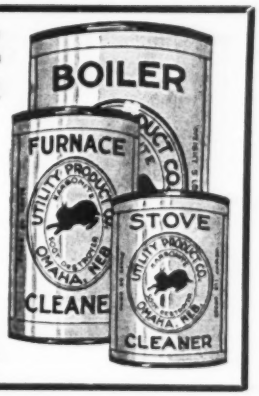


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One of the 105 Styles of American Cast N. P. Lavatory Traps

The artistic design and smooth finish of AMERICAN Traps will appeal instantly to your customers.

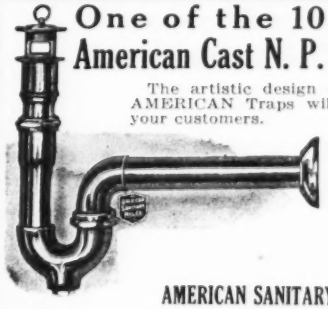

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Fig. 301

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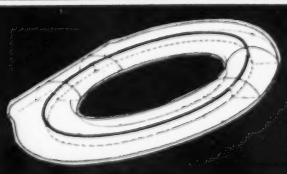
*Manufacturers of Fine N. P. Brass Specialties*



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## Situations Open

WANTED—PLUMBING SUPPLY SALESman. State age, experience, territory covered, references, married or single. Address 2730, care "Domestic Engineering," Chicago. 10-25

WANTED — JUNIOR DRAUGHTSMAN to learn heating and ventilating engineering—Best of opportunities. State experience and salary wanted to start with and send sample of work. Moline Heat, Engineering Dept., Moline, Ill. 10-11-tf

ARE YOU THE YOUNG MAN I AM looking for? I am in search of a young man who has ambitions and the ability necessary to make a commercial success—and at the same time is willing to sacrifice and work—and **work hard**—to attain success—I want a producer. If you have had experience in estimating or designing heating and ventilating so much the better. A college education is not essential, but the more you have educated yourself the better—I want to make a Heating and Ventilating Engineer Salesman, Manager or Owner out of you. Will you let me try? Write, telling me your experience. Address 2724, care "Domestic Engineering," Chicago. 10-11-tf

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AN A-1 STEAM FITTER DESIRES position with a big firm as an erector. Experience in all kinds of pipe work, power house work, big buildings and hot water heating. Strictly temperance. Will go anywhere. Twenty years' experience in Chicago and other cities. Address 2729, care "Domestic Engineering," Chicago. 10-25

MANAGER OR SALES MANAGER seeks engagement. Would like to get into touch with those desiring new blood in their business. Capable of organizing and systematizing. Result producing. Can "make good." A correspondent forceful, tactful, constructive along broad lines, thoroughly trustworthy and a hard, hustling worker. Aged 40 years. But recently resigned from responsible position, desire connection permanently with concern desiring change. Either medium size factory plant or supply house, or important branch office. Address 2717, care "Domestic Engineering," Chicago. 10-18-25

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FOR SALE—ONE 60 H. P. CHANDLER & Taylor used horizontal tubular boiler 54-in. x 14-in., 36 3-inch flues—complete with front, grates and standard trimmings, and in fairly good condition. Made for 200 lbs. pressure capacity. Has been used under 65 to 75 lbs. pressure to operate heating system in a store building. Mauzy Co., Rushville, Indiana. 10-25/11-8

FOR SALE—A QUANTITY OF 10 OHM rheostats first class in every respect; made by Ward Leonard Electric Co. and suitable for use on isolated lighting plants. Over stock and will sell these at $3.70 each plus 12 cents for parcel post, F. O. B. Syracuse any quantity. Send check and we will make prompt shipment by parcel post or express. Dyneto Electric Corp., Syracuse, N. Y. 10-25/11-8

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SELL YOUR SURPLUS COUPLINGS and fittings. Write us. The A. & J. Mfg. Co., 557 W. Lake St., Chicago. tf

WANTED—EXCLUSIVE AGENCY FOR a line of electric light plants and water supply systems for twenty-five counties in Northern Ohio. E. W. Fisher, Avon Lake, Ohio. 10-18-25

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## Government Proposals

TREASURY DEPARTMENT, Supervising Architect's Office, Washington, D. C., October 8, 1919.—Sealed proposals will be opened in this office at 3 p. m., November 6, 1919, for repairs to plumbing and heating in the United States Post Office at Kansas City, Kansas, in accordance with the specification, copies of which may be had at this office or at the office of the Custodian, Kansas City, Kansas, in the discretion of the Supervising Architect. Jas. A. Wetmore, Acting Supervising Architect. 10-18-25

TREASURY DEPARTMENT, Supervising Architect's Office, Washington, D. C., October 4, 1919.—Sealed Proposals will be opened in this office at 3 p. m., October 24, 1919, for a portable down-draft, firebox heating boiler, etc., in the United States Post Office, Logansport, Ind., in accordance with specification and drawing, copies of which may be had at this office or at the office of the custodian, Logansport, Ind., in the discretion of the Supervising Architect. Jas. A. Wetmore, Acting Supervising Architect. 10-11-18


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